FPC-3130

Robust Box PC with Intel® Atom™ D2550 Platform

User's Manual

Version 1.0

P/N: 4012313000100P

2012.06

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Declaration of Conformity

CE

The CE symbol on your product indicates that it is in compliance with the directives of the Union European (EU). A Certificate of Compliance is available by contacting Technical Support.

This product has passed the CE test for environmental specifications when shielded cables are used for external wiring. We recommend the use of shielded cables. This kind of cable is available from ARBOR. Please contact your local supplier for ordering information.

This product has passed the CE test for environmental specifications when shielded cables are used for external wiring. We recommend the use of shielded cables. This kind of cable is available from ARBOR. Please contact your local supplier for ordering information.

Warning
This is a class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

FCC Class B

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1)This device may not cause harmful interference, and

(2)This device must accept any interference received, including interference that may cause undesired operation.

NOTE:

This equipment has been tested and found to comply with the limits for a

Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

-- Reorient or relocate the receiving antenna.
-- Increase the separation between the equipment and receiver.
-- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
-- Consult the dealer or an experienced radio/TV technician for help.

RoHS

ARBOR Technology Corp. certifies that all components in its products are in compliance and conform to the European Union's Restriction of Use of Hazardous Substances in Electrical and Electronic Equipment (RoHS) Directive 2002/95/EC.

The above mentioned directive was published on 2/13/2003. The main purpose of the directive is to prohibit the use of lead, mercury, cadmium, hexavalent chromium, polybrominated biphenyls (PBB), and polybrominated diphenyl ethers (PBDE) in electrical and electronic products. Member states of the EU are to enforce by 7/1/2006.

ARBOR Technology Corp. hereby states that the listed products do not contain unintentional additions of lead, mercury, hex chrome, PBB or PBDB that exceed a maximum concentration value of 0.1% by weight or for cadmium exceed 0.01% by weight, per homogenous material. Homogenous material is defined as a substance or mixture of substances with uniform composition (such as solders, resins, plating, etc.). Lead-free solder is used for all terminations (Sn(96-96.5%), Ag(3.0-3.5%) and Cu(0.5%)).

SVHC / REACH

To minimize the environmental impact and take more responsibility to the earth we live, Arbor hereby confirms all products comply with the restriction of SVHC (Substances of Very High Concern) in (EC) 1907/2006 (REACH --Registration, Evaluation, Authorization, and Restriction of Chemicals) regulated by the European Union.

All substances listed in SVHC < 0.1 % by weight (1000 ppm)

Important Safety Instructions

Read these safety instructions carefully

1. Read all cautions and warnings on the equipment.
2. Place this equipment on a reliable surface when installing. Dropping it or letting it fall may cause damage
3. Make sure the correct voltage is connected to the equipment.
4. For pluggable equipment, the socket outlet should be near the equipment and should be easily accessible.
5. Keep this equipment away from humidity.
6. The openings on the enclosure are for air convection and protect the equipment from overheating. DO NOT COVER THE OPENINGS.
7. Position the power cord so that people cannot step on it. Do not place anything over the power cord.
8. Never pour any liquid into opening. This may cause fire or electrical shock.
9. Never open the equipment. For safety reasons, the equipment should be opened only by qualified service personnel.
10. If one of the following situations arises, get the equipment checked by service personnel:
    a. The power cord or plug is damaged.
    b. Liquid has penetrated into the equipment.
    c. The equipment has been exposed to moisture.
    d. The equipment does not work well, or you cannot get it to work according to the user's manual.
    e. The equipment has been dropped or damaged.
    f. The equipment has obvious signs of breakage.
11. Keep this User's Manual for later reference.

About This User's Manual

This User's Manual is intended for experienced users and integrators with hardware knowledge of personal computers. If you are not sure about any description in this User's Manual, please consult your vendor before further handling.

Warning

The Box PC and its components contain very delicately Integrated Circuits (IC). To protect the Box PC and its components against damage caused by static electricity, you should always follow the precautions below when handling it:

1. Disconnect your Box PC from the power source when you want to work on the inside.
2. Use a grounded wrist strap when handling computer components.
3. Place components on a grounded antistatic pad or on the bag that came with the Box PC, whenever components are separated from the system.

Replacing the Lithium Battery

Incorrect replacement of the lithium battery may lead to a risk of explosion.

The lithium battery must be replaced with an identical battery or a battery type recommended by the manufacturer.

Do not throw lithium batteries into the trashcan. It must be disposed of in accordance with local regulations concerning special waste.

Technical Support

If you have any technical difficulties, please consult the user's manual first at: ftp://ftp.arbor.com.tw/pub/manual

Please do not hesitate to call or e-mail our customer service when you still cannot find out the answer.

http://www.arbor.com.tw
E-mail:info@arbor.com.tw

Warranty

This product is warranted to be in good working order for a period of one year from the date of purchase. Should this product fail to be in good working order at any time during this period, we will, at our option, replace or repair it at no additional charge except as set forth in the following terms. This warranty does not apply to products damaged by misuse, modifications, accident or disaster.

Vendor assumes no liability for any damages, lost profits, lost savings or any other incidental or consequential damage resulting from the use, misuse of, or inability to use this product. Vendor will not be liable for any claim made by any other related party.

Vendors disclaim all other warranties, either expressed or implied, including but not limited to implied warranties of merchantability and fitness for a particular purpose, with respect to the hardware, the accompanying product's manual(s) and written materials, and any accompanying hardware. This limited warranty gives you specific legal rights.

Return authorization must be obtained from the vendor before returned merchandise will be accepted. Authorization can be obtained by calling or faxing the vendor and requesting a Return Merchandise Authorization (RMA) number. Returned goods should always be accompanied by a clear problem description.

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Chapter 1

General Information

1.1 Introduction

The Box PC, FPC-3130 is targeted at many different application fields. By adopting it, you can pinpoint specific markets, such as Thin Client, KIOSK, information booth, GSM Server, environment-critical and space-critical applications.

- **All-In-One Platform**
  The CPU, DRAM and even software are integrated to provide a plug-and-play machine.
- **Compact-sized**
  The kernel of FPC-3130 is FMB-i2505, which is a non-standard form factor embedded board. The whole system consumes only a few space.
- **Fanless and Modular CPU Board**
  By using a low power processor, the system does not have to rely on fans, which are often unreliable and cause dust to circulate inside the equipment. The modular design facilitates maintenance or possible upgrades on the CPU board. Modular Box PC can be easily modified to fit many different applications according to customers' requests.
- **Powerful Communication Capability**
  The FPC-3130 provides COM, Ethernet, USB, Mini Card slot, CFast, SIM and DVI.
- **Numerous Display/Video Output**
  Integrated with Intel® HD Graphics core, FPC-3130 improves graphics and 3D rendering performance and supports display/video output options includes DVI-I and DVI-D.
- **Advanced Storage Solution**
  FPC-3130 comes with SD (Secure Digital) slot, which offers a better, faster and more cost-effective expansibilities for various applications.
- **Trustworthy**
  The onboard Watchdog Timer can invoke an NMI or system RESET when your application loses control over the system.

1.2 Packing List

After opening the package, carefully inspect the contents. If any of the items is missing or appears damaged, please contact your local dealer or distributor. The package should contain the following items:

1 x FPC-3130 Box PC

1 x Driver CD

1 x User's Manual

1.3 Ordering Information

FPC-3130	Barebone system w/o storage device

The following items are normally optional, but some vendors may include them as a standard package, or some vendors may not carry all the items.

Optional Accessories

PAC-B065W-1
65W AC/DC adapter kit

DRK-001
Din rail kit of FPC series

WMK-3100
Wall-mount kit

	VMK-3100 VESA mount kit
	CBL-7100-COM COM converter cable
Optional Configuration (Configure to Order Service)	
	SSD-25040 Intel® 2.5” 40GB SATAII SSD kit
	MM-3C-2G DDR3-1333 2GB SDRAM
	MM-3C-4G DDR3-1333 4GB SDRAM
	WFM-i2030 802.11 a/b/g/n WiFi module kit & internal wiring
	ANT-11 1 x WiFi Dual-band 2.4G/5G antenna

1.4 The Installation Paths of CD Driver

Windows 7-32bit

Driver	Path
CHIPSET	\Chipset\Win7_x86
VGA	\VGA\Win7_x86
LAN	\LAN\Install_Win7_7048_09162011
AUDIO	\Driver\Audio ALC662\Win 7(32,64 bits) Driver_R2.66

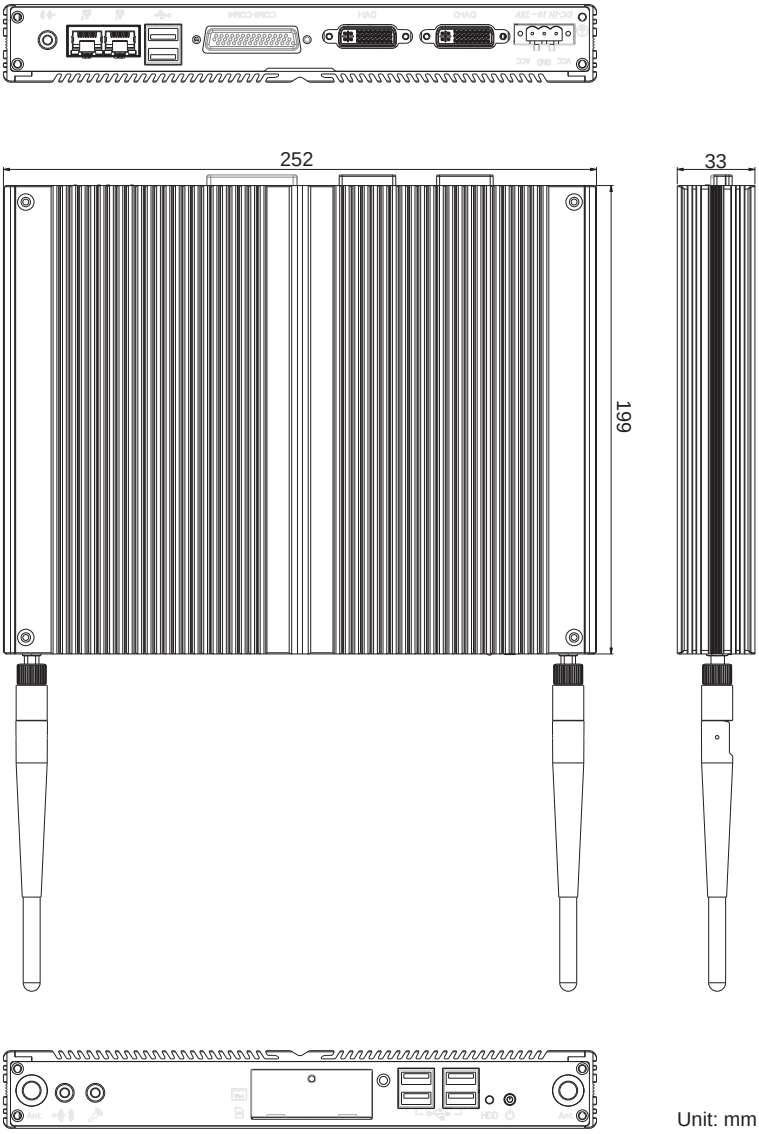
Note: FPC-3130 only supports Windows 7 32bit.

1.5 Specifications

System Kernel	
Processor	Soldered onboard Intel® Atom™ D2550 1.86GHz processor
BIOS	AMI Flash BIOS
Chipset	Intel® NM10 PCH
Graphics	Integrated Intel® GMA 3650
System Memory	1 x 204-pin Dual Channels DDR3 SO-DIMM Socket up to 4GB at 800/1066MHz
Serial ATA	1 x Serial ATA port with 300MB/s HDD transfer rate
Ethernet Controller	2 x Realtek 8111 Gigabit Ethernet controllers
Watchdog Timer	1 ~ 255 levels reset
I/O Ports	
Serial Port	2 x RS-232 ports & 2 x RS-232/422/485 selectable ports with DB-44 pin connector
Expansion Bus	• 1 x Mini-card slot interconnected with SIM card socket for optional WiFi or HSUPA module • 1 x SIM Card Socket
USB Port	6 x USB 2.0 ports
LAN	2 x RJ-45 ports for Gigabit Ethernet
Video Port	• 1 x DVI-I female connector for Digital Video output • 1 x DVI-D female connector for Digital Video output
Audio	Mic-in/Line-out/Line-out with 6W amplify
Storage	
Type	• 1 x 2.5” drive bay for HDD/SSD • 1 x CFast Socket
Qualification	
FCC	Class B certified
CE	Certified

Environmental	
Operating Temp.	-20 ~ 70°C (-4 ~ 158°F), ambient w/ air flow
Storage Temp.	-40 ~85 °C (-40 ~ 185°F)
Relative Humidity	10 ~ 95% @ 40°C (non-condensing)
Vibration	3 Grms/5 ~ 500 Hz/random operation
Shock & Crash	• Operating 20G (11ms), Non-operating 60G with HDD • Operating 40G (11ms), Non-operating 80G with CF/ SSD • Crash 100G (11ms)
Mechanical	
Construction	Aluminum alloy
Mounting	Wall-mount/VESA-mount/Din rail mounting
Weight	1.89 kg (4.16 lb) (Bare-bone) (ref.)
Dimensions (W x D x H)	252 x 199 x 33 mm (9.92” x 7.83” x 1.3”)
Power Requirement	
Power Input	DC 10~28V input (w/ 1 x 3-pin DC input terminal block)
Power Consumption	30W (Max.)

1.6 Dimensions

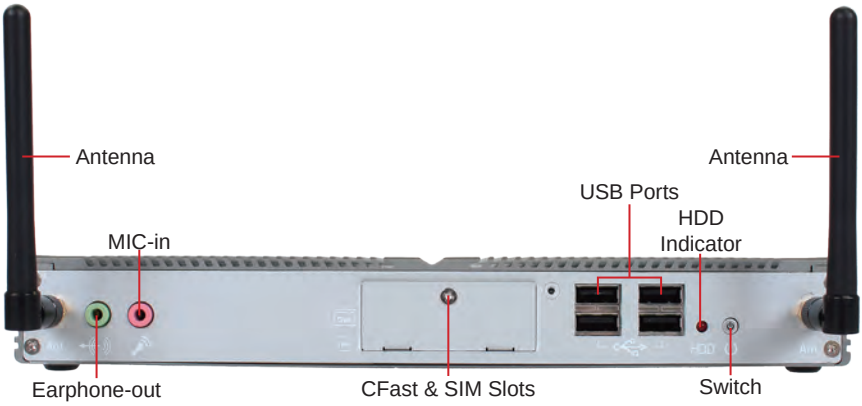


Unit: mm

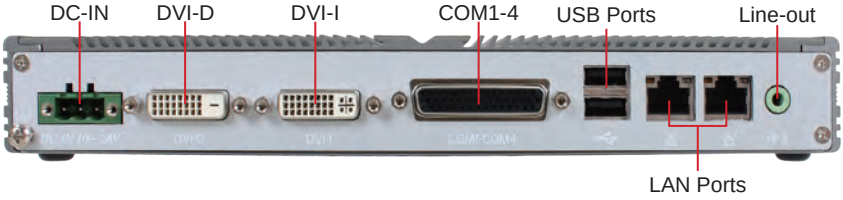
1.7 Locating Controls and Connectors

Please take a moment to identify those controls and connectors shown in the following figures.

Front Panel



Rear Panel



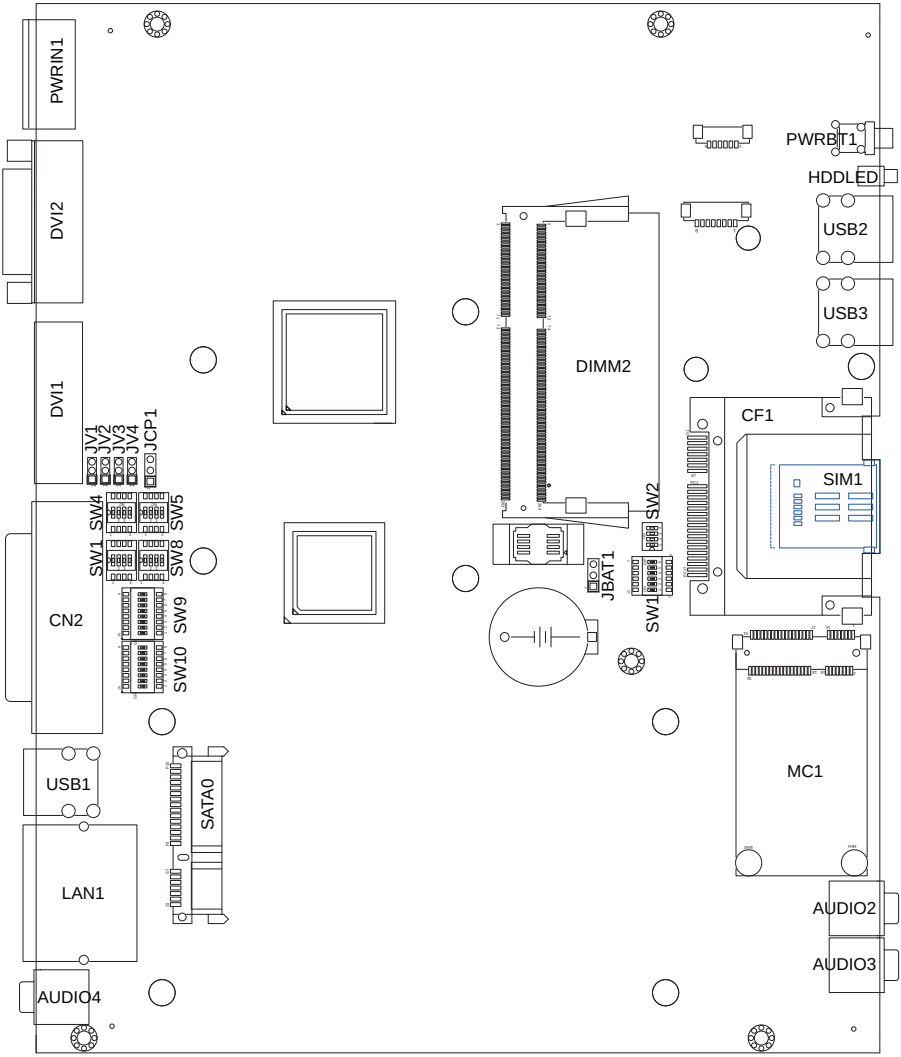
Side View

Chapter 2

The Engine of FPC-3130

2.1 Board Layout

The engine of FPC-3130 is FMB-i2505.



2.2 Jumpers and Connectors

2.2.1 Jumpers & Connectors List

Jumpers

Label	Function
JBAT1	Clear CMOS Setting
JCP1	COM Port Power Selector
JV1~4	RI/5V/12V (Pin 9) Selectors for COM1~4 Ports
SW1	System On/Off Timing Setting Jumper
SW2	Battery Low Setting Jumper
SW4~5, SW8~11	RS-232/422/485 Mode Selectors for COM3~4 Ports

Connectors

Label	Function
MC1	Mini Card Socket
SATA0	Serial ATA + Power Connector
LAN1	Dual Ethernet Connectors
USB1~3	Double-stacked USB Connectors
AUDIO2	Audio Jack Connector (MIC)
AUDIO3	Audio Jack Connector (Line-out)
AUDIO4	Audio Jack Connector (Line-out with 6W Amplify)
CF1	CFast Slot
CN2	RS-232 (COM1~2); RS-232/422/485 (COM3~4)
HDDLED	HDD Status LED
PWRBT1	Power On/Off Switch
PWRIN1	DC Adapter Power Input
DVI1	DVI-I
DVI2	DVI-D
SIM1	SIM Card Slot

2.2.2 Jumper Setting

JBAT1: Clear CMOS Setting

Pin	Description	
1-2	Keep CMOS (Default)	
2-3	Clear CMOS	

JCP1: COM Port Power Selector

Pin	Description	
1-2	Normal (Default)	
2-3	+12V	

JV1~4: RI/5V/12V (Pin 9) Selection for COM1~4 Ports

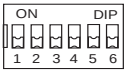
Pin	Description	
1-2	Normal (Default)	
2-3	COMPOWER	

Note: JV1~4 correspond to COM1~4 ports respectively.

SW2: Battery Low Setting Jumper

Pin	Battery Low	Description
1	On, Off (default)	BUS Low Voltage Detection (24V)
2	On (default), Off	CAR Low Voltage Detection (12V)
3	On, Off (default)	Normally Low Voltage Detection (9V above)
4	On, Off (default)	Car Engine Ignition Detection

SW1: System On/Off Timing Setting Jumper

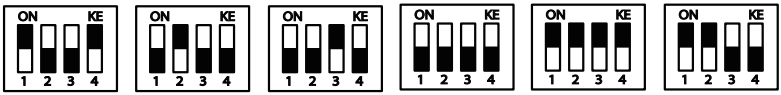


Pin	DIP SW Auto Car Key on Detection	Description
1	On, Off (default)	Auto Power On (1 - Auto / 0 - Manual)
2	On, Off (default)	Auto Power Off (1 - Auto / 0 - Manual)
3 & 4	On, Off (default)	Power-on Waiting Time – Setup Timing (00-4s)(01-8s)(10-12s)(11-16s)
5 & 6	On, Off (default)	Power-off Waiting Time – Setup Timing (00-30s)(01-45s)(10-60s)(11-90s)

Note: Swith Pin1 to On and Pin2 to On to activate Auto Power On and Auto Power Off functions respectively.

SW4~5, SW8~11: RS-232/422/485 Mode Selectors for COM3~4 Ports

Pin	SW4~5			SW8 & 11		
	RS-232 (Default)	RS-422 Mode	RS-485 Mode	RS-232 (Default)	RS-422 Mode	RS-485 Mode
1	ON	OFF	OFF	OFF	ON	ON
2	OFF	ON	OFF	OFF	ON	ON
3	OFF	OFF	ON	OFF	ON	OFF
4	ON	OFF	OFF	OFF	ON	OFF

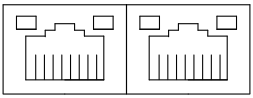


Note: SW4, 8, 9 control COM3; SW5, 11, 10 control COM4. You must set the same group of switches together for different modes.

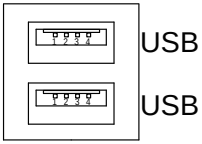
Pin	SW9~10	
	RS-232 Mode (Default)	RS-422/RS-485 Mode
1	ON	OFF
2	ON	OFF
3	ON	OFF
4	ON	OFF
5	ON	OFF
6	ON	OFF
7	ON	OFF
8	ON	OFF

2.2.3 Pin Assignments for Connectors

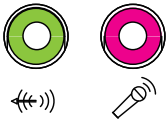
LAN1: Dual Ethernet Connectors



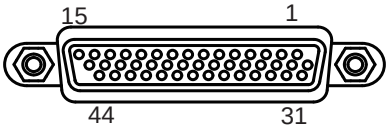
USB1~3: Double-stacked USB Connectors



AUDIO2~4: Audio Jack Connectors

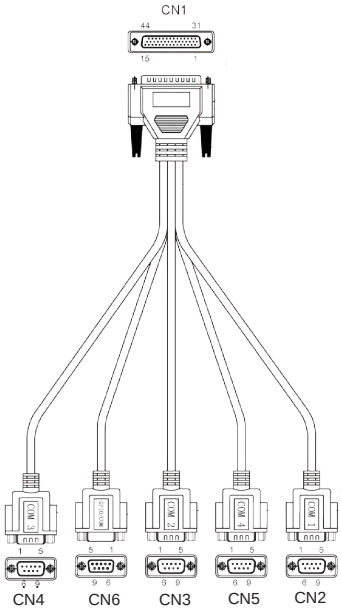


CN2: RS-232 (COM1~2); RS-232/422/485 (COM3~4)



	Pin	Desc.	Pin	Desc.		Pin	Desc.	Pin	Desc.
COM1 (RS-232)	1	DCD	2	RXD	COM2 (RS-232)	11	DCD	12	RXD
	3	TXD	4	DTR		13	TXD	14	DTR
	5	GND	6	DSR		15	GND	16	DSR
	7	RTS	8	CST		17	RTS	18	CST
	9	RI	10	GND		19	RI	20	GND
COM3 (RS-232)	21	DCD	22	RXD	COM4 (RS-232)	31	DCD	32	RXD
	23	TXD	24	DTR		33	TXD	34	DTR
	25	GND	26	DSR		35	GND	36	DSR
	27	RTS	28	CST		37	RTS	38	CST
	29	RI	30	GND		39	RI	40	GND
N/C	41	N/C	42	N/C					
	43	N/C	44	N/C					

CBL-7100-COM (COM Converter Cable) (optional)
1 to 5 COM converter cable: 4 x DB9 male and 1 x DB9 female connectors



Note: CN6 on DB9 Cable Controller is unused.

COM1 (RS-232) labelled CN2 on DB9 Cable Controller

DB44 Pin	DB9 Pin	Desc.	DB44 Pin	DB9 Pin	Desc.
1	1	DCD	2	2	RXD
3	3	TXD	4	4	DTR
5	5	GND	6	6	DSR
7	7	RTS	8	8	CTS
9	9	RI	10		GND

COM2 (RS-232) labelled CN3 on DB9 Cable Controller

DB44 Pin	DB9 Pin	Desc.	DB44 Pin	DB9 Pin	Desc.
11	1	DCD	12	2	RXD
13	3	TXD	14	4	DTR
15	5	GND	16	6	DSR
17	7	RTS	18	8	CTS
19	9	RI	20		GND

COM3 (RS-232) labelled CN4 on DB9 Cable Controller

DB44 Pin	DB9 Pin	Desc.	DB44 Pin	DB9 Pin	Desc.
21	1	DCD	22	2	RXD
23	3	TXD	24	4	DTR
25	5	GND	26	6	DSR
27	7	RTS	28	8	CTS
29	9	RI	30		GND

COM4 (RS-232) labelled CN5 on DB9 Cable Controller

DB44 Pin	DB9 Pin	Desc.	DB44 Pin	DB9 Pin	Desc.
31	1	DCD	32	2	RXD
33	3	TXD	34	4	DTR
35	5	GND	36	6	DSR
37	7	RTS	38	8	CTS
39	9	RI	40		GND

COM3/4 (RS-422) labelled CN4/5 on DB9 Cable Controller

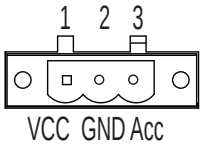
DB9 Pin	Signal	Desc.	DB9 Pin	Signal	Desc.
1	Rx-		2	Rx+	
3	Tx+		4	Tx-	
5	N/C		6	N/C	
7	N/C		8	N/C	
9	N/C				

COM3/4 (RS-485) labelled CN4/5 on DB9 Cable Controller

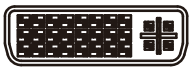
DB9 Pin	Signal	Desc.	DB9 Pin	Signal	Desc.
1	DATA-		2	DATA+	
3	N/C		4	N/C	
5	N/C		6	N/C	
7	N/C		8	N/C	
9	N/C				

PWRIN1: DC Adapter Power Input

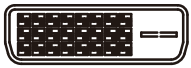
Pin	Description
1	VCC 10~28V
2	GND
3	ACC (ignition signal)



DVI1: DVI-I



DVI2: DVI-D



Chapter 3

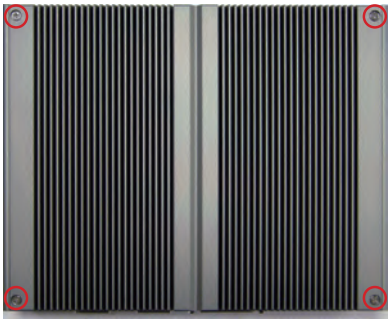
Installation and Maintenance

3.1 Memory, Mini-card & HDD Installation

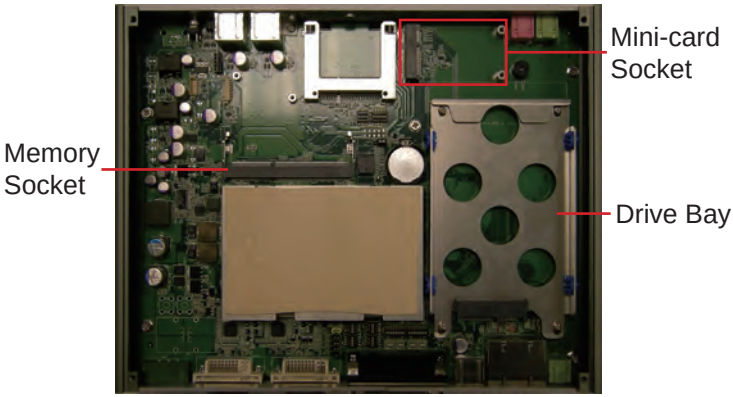
FPC-3130 is designed to be modular, slim and lightweight for easier maintenance. The following sections describe simple hardware installations.

3.1.1 Removing Top Cover

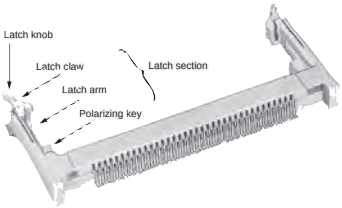
1. Carefully place the Box PC on flat surface. Unscrew four screws securing the top cover. Remove top cover using a crosshead from the notch on rear panel's edge. Rember, top cover adheres to internal parts thightly due to a sticky thermal pad, so you should unclinch it by some force.

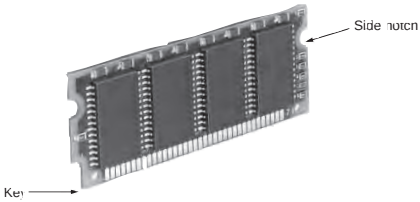


2. Gently pull top cover upward and retain it for later use.



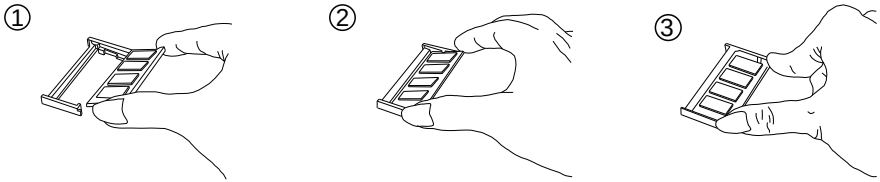
3.1.2 Installing Memory Module





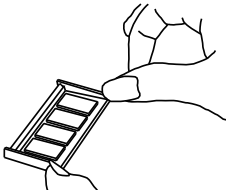
To install the Memory module, locate the Memory SO-DIMM slot on the board and perform as below:

1. Adjust the socket polarizing key and the board key to the same direction.
2. Insert the board obliquely. Moreover, lay the board in parallel to the opening at angle of 20^{o} to 30^{o}, and softly insert the board so as to hit the socket bottom. Stopping insertion halfway will result in improper insertion.
3. Applying the board side notch in parallel to the socket bottom so that the board position cannot be displaced, press the board side notch up, and fix it to the latch portion at both socket edges. Press the board side notch, and release the notch with a snap “click” tone, if the printed board exceeds the latch claw head.



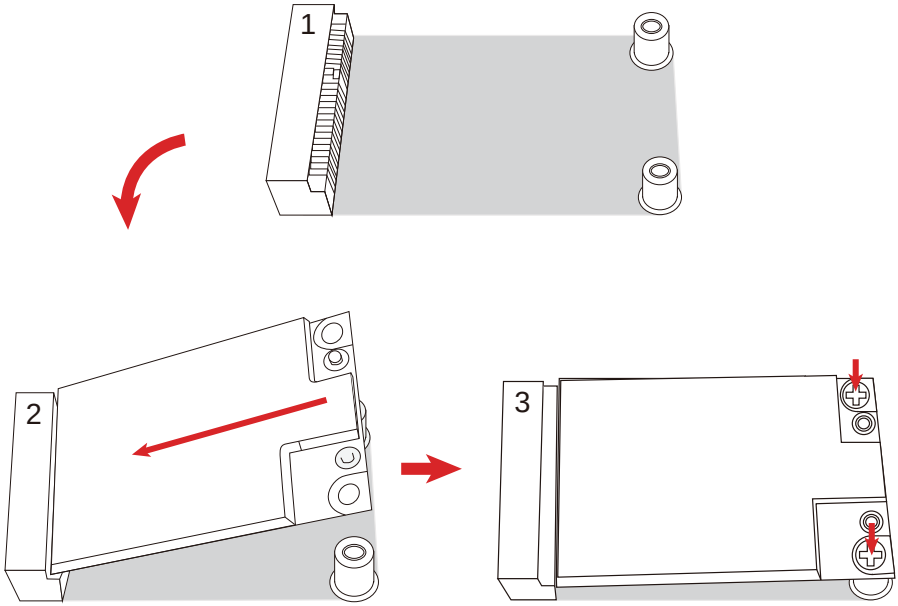
Procedures for board extraction

Apply the thumb nail to the latch knob at both socket edges. Forcibly widen the latch knobs to right and left ways, and release the latch. Then draw the board out along an angle where the board is raised.



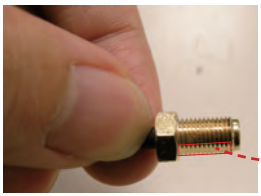
3.1.3 Installing Mini-card (optional)

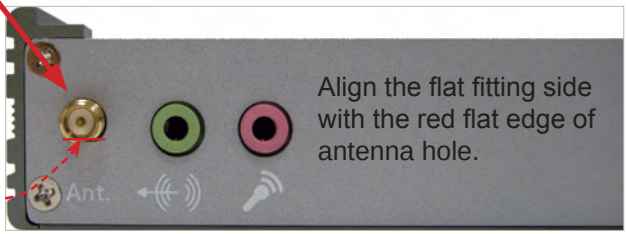
1. Locate Mini-card socket.
2. Insert HSUPA module into its slot at a slanted angle. Remember to align the notch with the break on slot.
3. And then, secure two screws to fasten the module.



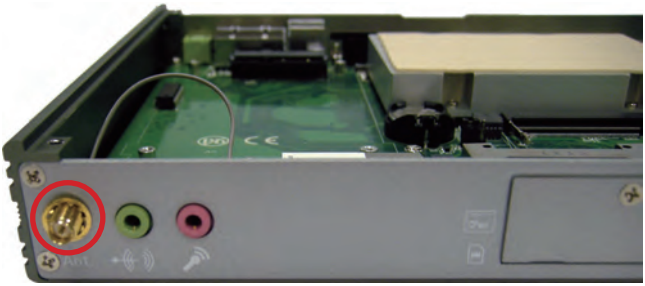
4. Push the plastic plug outwards to remove it, so that one end of RF cable, which is a SMA connector jack, can penetrate through antenna hole located on front pane. Keep the plastic plug for later use.

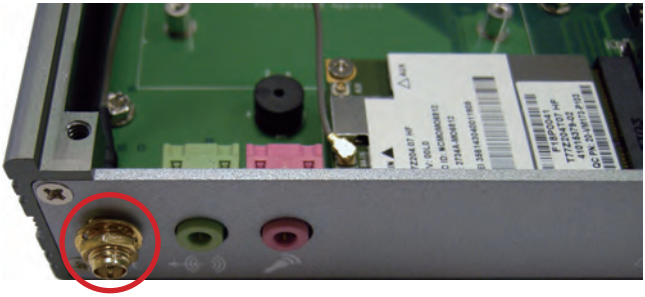
5. Press another end of the RF cable into one of the studs named MAIN. And penetrate the SMA connector jack through antenna hole, be sure to put the flat side (in red frame) rightwards, or it'll get stuck.



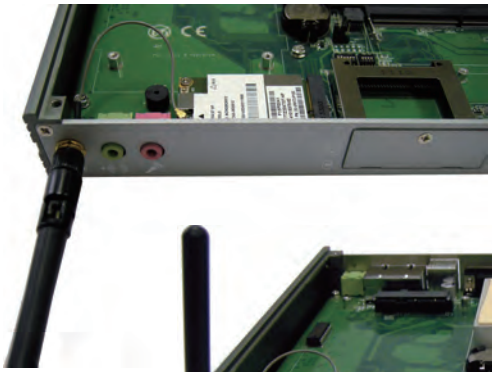


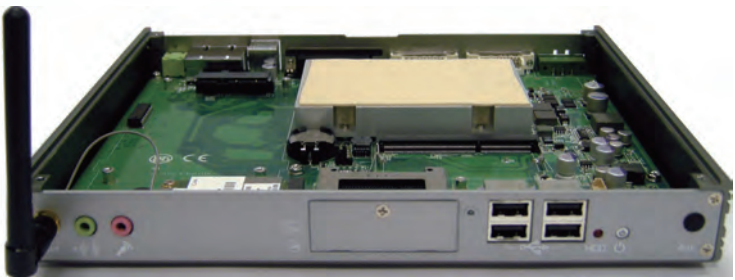
6. Mount a round washer into the SMA connector jack from outside before securing another nut into it.





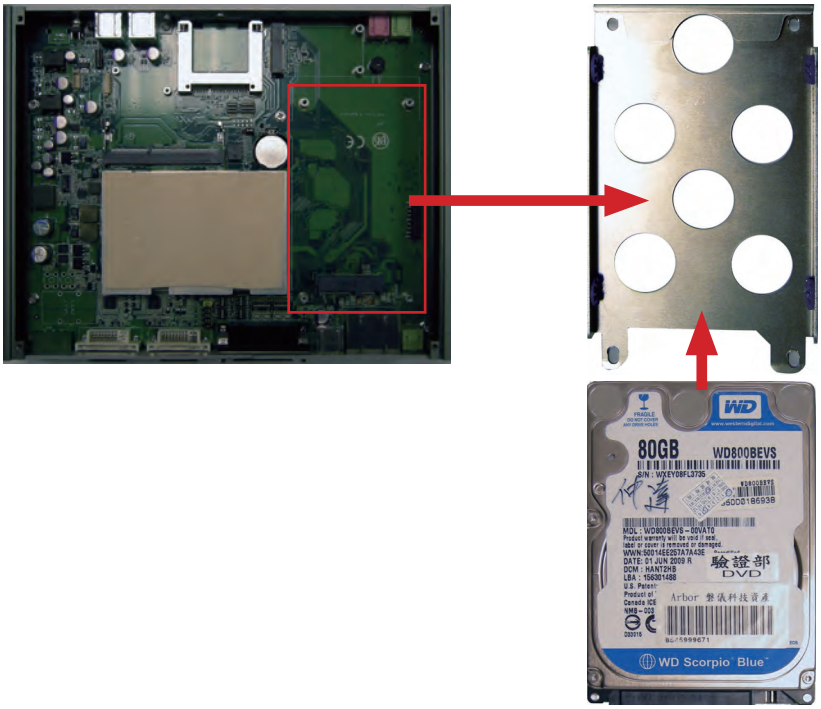
7. At the end, screw antenna into the SMA connector jack and adjust antenna angle for better signal.

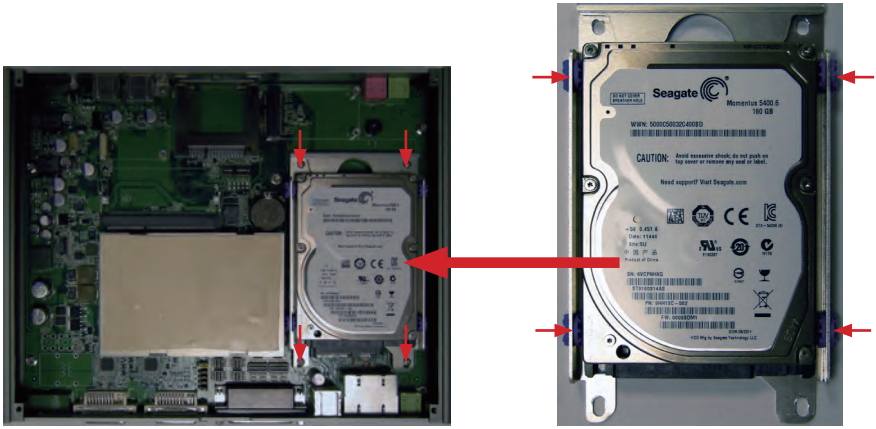




3.1.4 Installing Hard Disk Drive

1. Unscrew HDD bracket from the main board. Fasten HDD on bracket.
2. Insert the bracket into driver bay and secure its four corners.





3.2 How to Access CFast/SIM Card

1. Make sure you have turned off the power before inserting or ejecting the CFast card (if OS is installed on CFast card).
2. Locate the CFast card door on the front panel.
3. Use a crosshead screwdriver (#1 tip) to remove the screw that secures the CFast/SIM card door. Pull down the door. Owning to mechanical design, please move left first and right while pulling off.

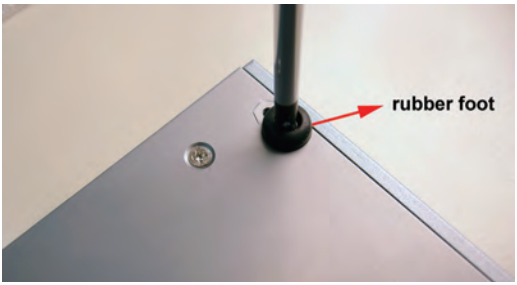
4. Insert your CFast/SIM card into the slot according to the illustration by the card holder. Push it inward until you hear a click. After inserting the CFast/SIM card, close the card door and screw it on clockwise.

5. To remove the CFast/SIM card, follow step 1, 2 and 3 above. And then push card inward to pop-out it from the slot.

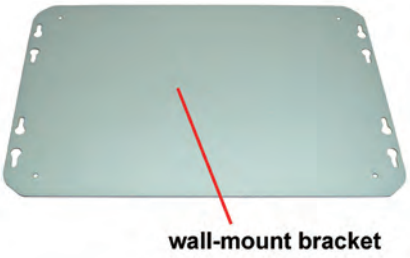
3.3 Wall Mounting (optional)

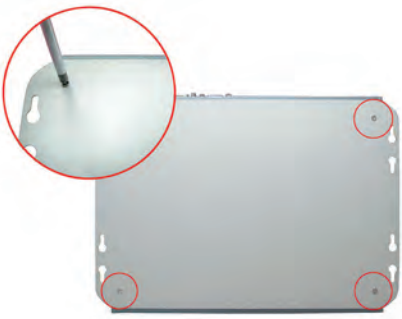
Prepare the wall-mount bracket and a screwdriver for wall mounting. Follow the instructions below:

1. Place the Box PC upside down on a flat surface and locate the 4 rubber foot screws.
2. Unscrew them and separate the screws from the rubber feet. Keep the rubber feet for later use.



3. Use the screws to secure the wall-mount bracket to the unit.
4. When the bracket is attached, the computer can be hanged on the wall as the way you want.





3.4 VESA Mounting (Optional)

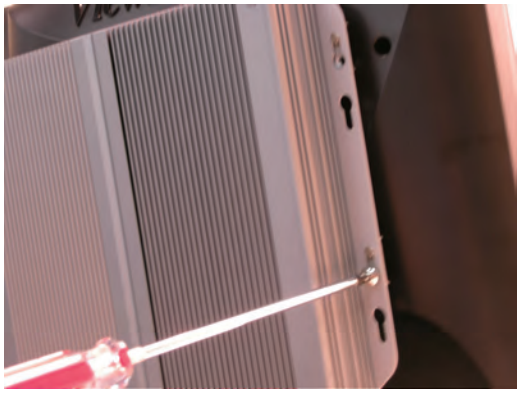
FPC-3130 can be mounted to the rear side of the LCD monitor that is VESA 75/100 compliant. To mount FPC-3130 to your monitor, please prepare the wall-mount bracket, VESA-mount brackets, accompanying screws and a screwdriver. Please follow the instructions as below:

1. Locate the VESA-compliant screw holes at the rear side of the LCD monitor.

ViewSonic VA703m
The lamp in this product contains mercury.Please dispose of
in accordance with local,state or federal laws.

2. Secure the VESA mounting brackets firmly to the monitor.

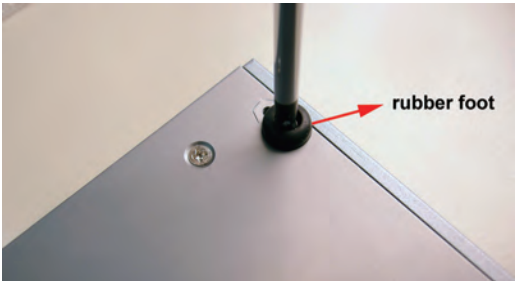
3. With the wall-mount bracket attached, slide FPC-3130 onto the VESA bracket. When the computer is well seated, secure it to the VESA bracket with the accompanying screws. See the figures shown below.



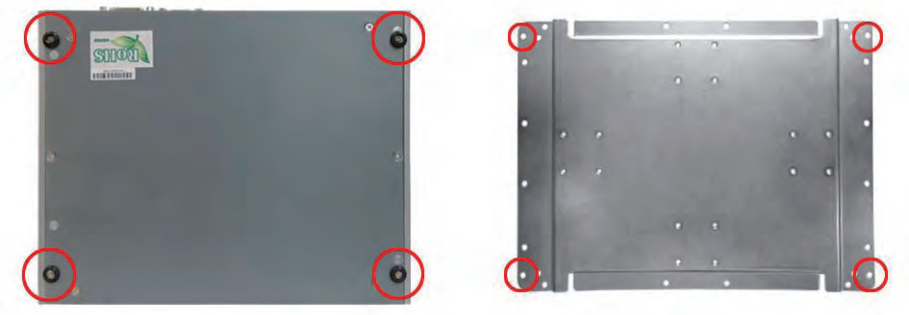
3.5 DIN Rail Mounting (optional)

Prepare the DIN rail kit and a screwdriver for DIN rail mounting. Follow the instructions below:

1. Place the Box PC upside down on a flat surface and locate the 4 rubber foot screws.
2. Unscrew them and separate the screws from the rubber feet. Keep the rubber feet for later use.



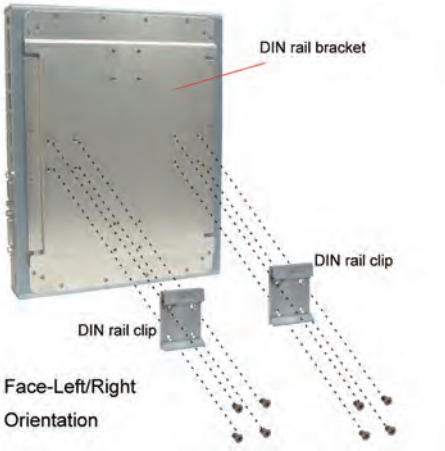
3. As the figure shown below, align the screw holes of the DIN rail bracket with the ones of the main unit. Use the screwdriver to secure the bracket to the main unit with the accompanying screws.

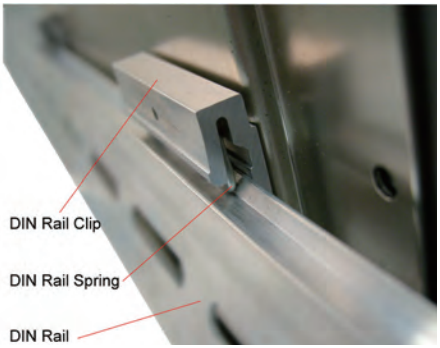


4. You can mount the BOX PC on a DIN rail in the horizontal or vertical direction.
5. Fasten a pair of DIN rail clips to the DIN rail bracket which was attached to the main unit. Please refer to the following figures for horizontal and vertical orientation mounting.

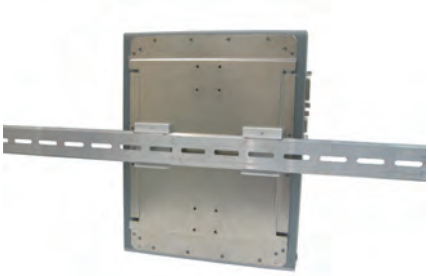
3.5.1 Face-Left/Right DIN Rail Mounting

1. For panel face-left/right mounting, please secure the two DIN rail clips to the DIN rail bracket according to the illustration.





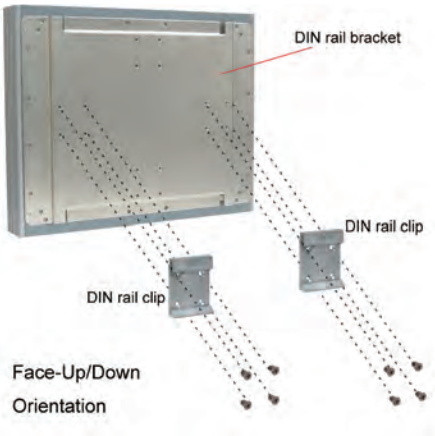
2. Position the bracket side of the box PC directly in front of the DIN rail. Make sure the DIN rail spring is hooked over the top of the DIN rail. If the box PC can't be fixed firmly, rotate the unit and hook the clip's spring to the bottom of the DIN rail.

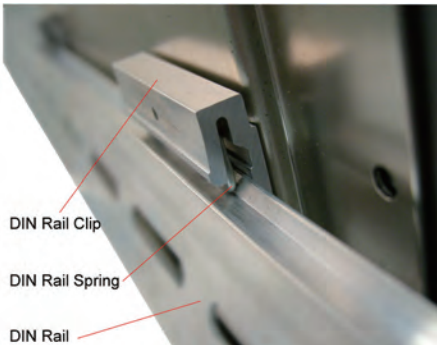


Box PC mounted on the DIN rail

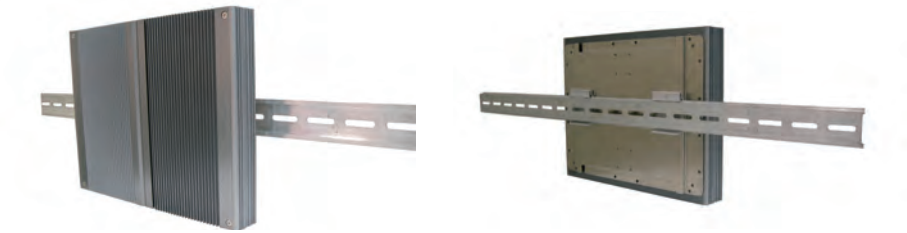
3.5.2 Face-Up/Down DIN Rail Mounting

1. For panel face-up/down mounting, please secure the two DIN rail clips to the DIN rail bracket according to the illustration.





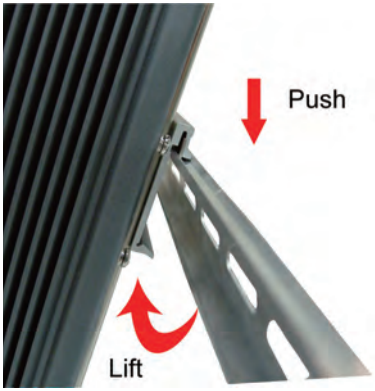
2. Position the bracket side of the box PC directly in front of the DIN rail. Make sure the DIN rail spring is hooked over the top of the DIN rail. If the box PC can't be fixed firmly, rotate the unit and hook the clip's spring to the bottom of the DIN rail.



Box PC mounted on the DIN rail

3.5.3 Removing the Box PC from the DIN Rail

1. Make sure power is off, and disconnect all cables from the computer.
2. Hold the Box PC with both hands and push downwards. As the clip releases, lift the bottom of Box PC slightly.



3.6 Grounding the Box PC

Follow the instructions below to ground the box PC onto land. Be sure of following any grounding requirements in your place.

> **Warning** Whenever installing the unit, the ground connection must always be made first of all and disconnected lastly.

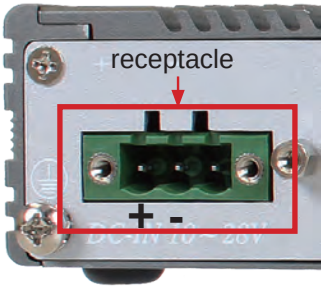
1. As the figure illustrates above, remove the ground screw located on the bottom-left of the rear panel.
2. Attach the ground wire to the rear panel with the screw.

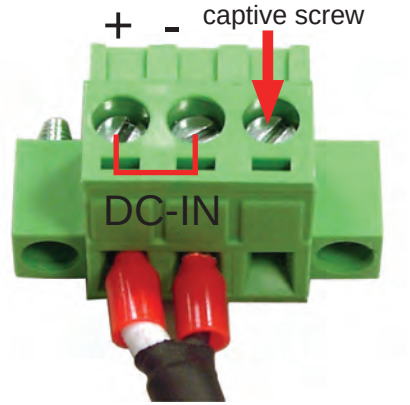
3.7 Wiring the DC-Input Power Source

Warning Only trained and qualified personnel are allowed to install or replace this equipment.

Follow the instructions below for connecting the computer to a DC-input power source.

1. Before wiring, make sure the power source is disconnected.
2. Find the terminal block in the accessory box.
3. Use the wire-stripping tool to strip a short insulation segment from the output wires of the DC power source.
4. Identify the positive and negative feed positions for the terminal block connection. See the symbols printed on the rear panel indicating the polarities and DC-input power range in voltages.
5. Insert the exposed wires into the terminal block plugs. Only wires with insulation should extend from the terminal block plugs. Note that the polarities between the wires and the terminal block plugs must be positive to positive and negative to negative.
6. Use a slotted screwdriver to tighten the captive screws. Plug the terminal block firmly, which wired, into the receptacle on the rear panel.





terminal block

Chapter 4

Driver & AP

4.1 Preliminary work

After everything mentioned before is settled down, and now, you need to install the necessary drivers and the application so that the box PC's functions can operate normally. The following instructions take Windows 7 as the exemplary OS. Different OS may vary slightly, but generally speaking, they are almost the same. Be assured that appropriate installation procedure is as below:

CHIPSET→VGA→AUDIO→LAN

Please **Follow This Procedure** to install all necessary units in most cases, or you may encounter errors.

Also, the correct driver & AP paths for Windows 7 & Windows XP are listed below. You should follow the suggested paths to proceed with installation.

Windows 7-32bit

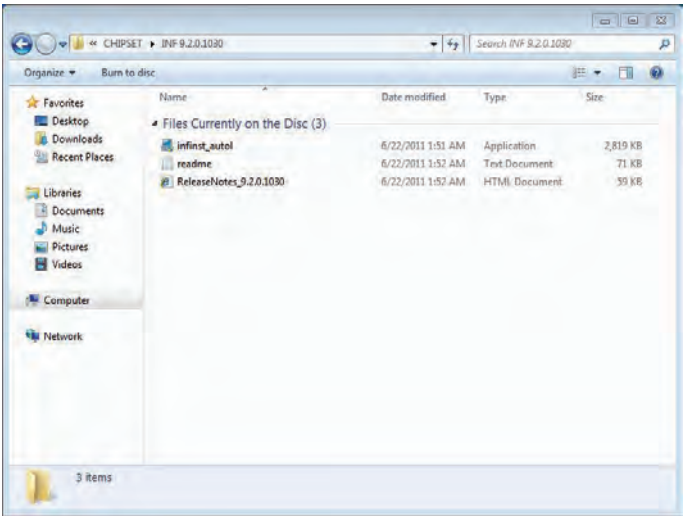
Driver	Path
CHIPSET	\Chipset\Win7_x86
VGA	\VGA\Win7_x86
LAN	\LAN\Install_Win7_7048_09162011
AUDIO	\Driver\Audio ALC662\Win 7(32,64 bits) Driver_R2.66

Note: FPC-3130 only supports Windows 7 32bit.

4.2 Drivers

4.2.1 CHIPSET

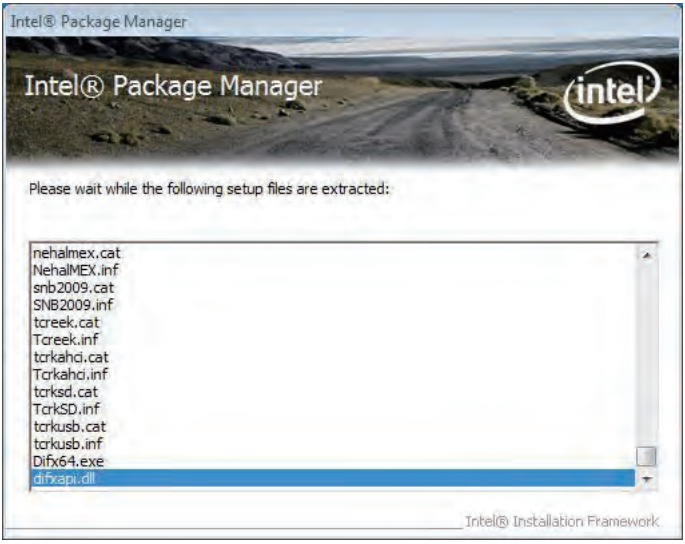
1. Execute “infinst_autol.exe” in the suggested path (\CHIPSET\INF 9.2.0.1030). Always click Yes whenever Windows 7 inquires you “Do you want to allow the following programs to make changes to this computer?”



2. Click “Next >”.

Intel® Chipset Device Software
Intel® Chipset Device Software
intel
Welcome to the Setup Program
This setup program will install the Intel® Chipset Device Software onto this computer. It is strongly recommended that you exit all programs before continuing.
< Back
Next >
Cancel
Intel® Installation Framework

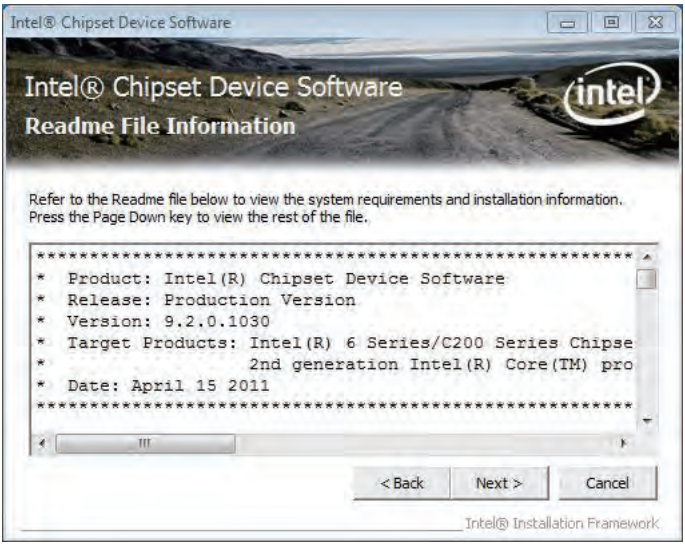
3. Wait for extracting.



4. Click “Yes >”.

Intel® Chipset Device Software
Intel® Chipset Device Software
License Agreement
You must accept all of the terms of the license agreement in order to continue the setup program. Do you accept the terms?
INTEL SOFTWARE LICENSE AGREEMENT (OEM / IHV / ISV Distribution & Single User)
IMPORTANT - READ BEFORE COPYING, INSTALLING OR USING.
Do not use or load this software and any associated materials (collectively, the "Software") until you have carefully read the following terms and conditions. By loading or using the Software, you agree to the terms of this Agreement. If you do not wish to so agree, do not install or use the Software.
Please Also Note:
* If you are an Original Equipment Manufacturer (OEM), Independent Hardware Vendor (IHV), or Independent Software Vendor (ISV), this complete LICENSE AGREEMENT applies;
< Back
Yes
No
Intel® Installation Framework

5. Click “Next >”.

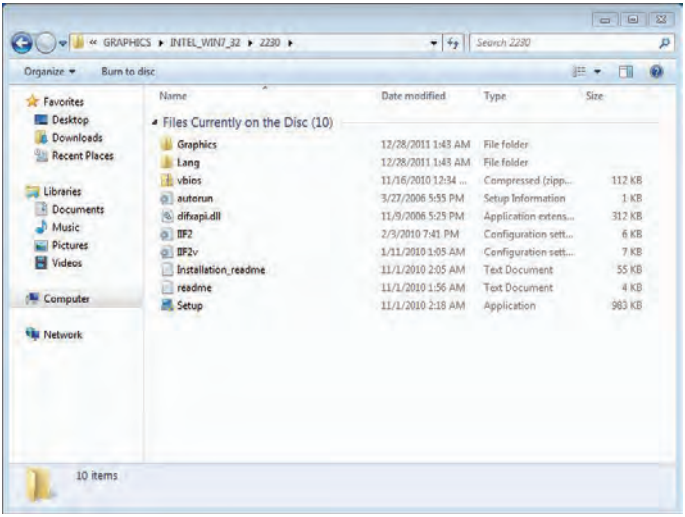

Intel® Chipset Device Software
Intel® Chipset Device Software
Readme File Information
Refer to the Readme file below to view the system requirements and installation information.
Press the Page Down key to view the rest of the file.
****
* Product: Intel(R) Chipset Device Software
* Release: Production Version
* Version: 9.2.0.1030
* Target Products: Intel(R) 6 Series/C200 Series Chipse
* 2nd generation Intel(R) Core(TM) pro
* Date: April 15 2011
****
< Back
Next >
Cancel
Intel® Installation Framework

6. Click “Finish >”.

Intel® Chipset Device Software
Intel® Chipset Device Software
Setup Is Complete
The setup program successfully installed the Intel® Chipset Device Software onto this computer.
Click Finish to complete the setup process.
Finish
Intel® Installation Framework

4.2.2 VGA

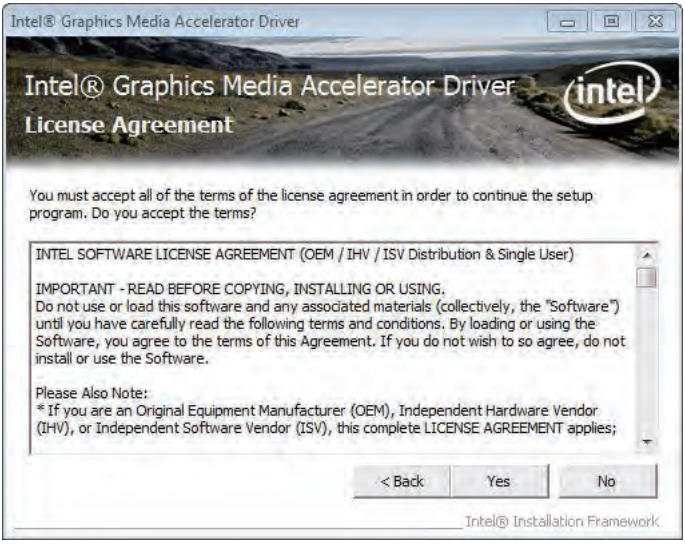
1. Execute “Setup.exe” in the suggested path (\GRAPHICS\INTEL_WIN7_32\2230).



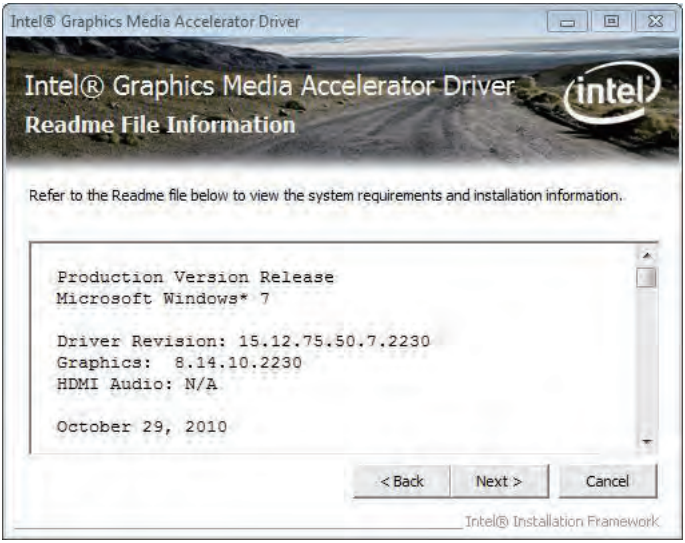
2. Click “Next >”.

Intel® Graphics Media Accelerator Driver
Intel® Graphics Media Accelerator Driver
intel
Welcome to the Setup Program
This setup program will install the Intel® Graphics Media Accelerator Driver onto this computer. It is strongly recommended that you exit all programs before continuing. Click Next to continue.
Automatically run WinSAT and enable the Windows Aero desktop theme (if supported).
< Back
Next >
Cancel
Intel® Installation Framework

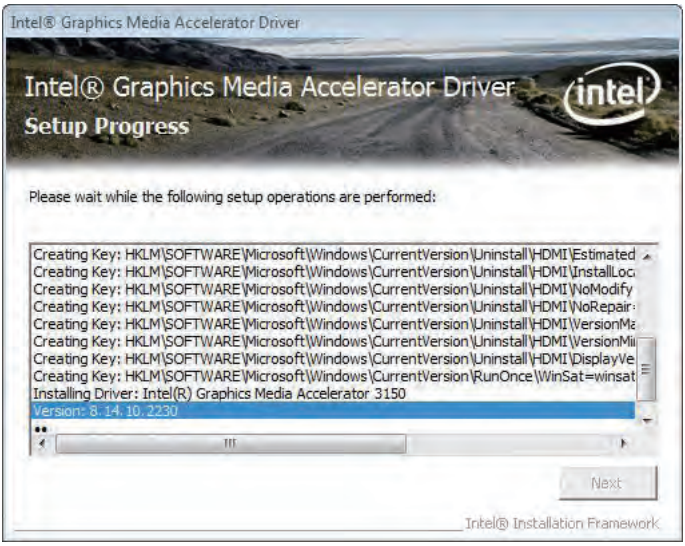
3. Click “Yes >”.


Intel® Graphics Media Accelerator Driver
Intel® Graphics Media Accelerator Driver
License Agreement
intel
You must accept all of the terms of the license agreement in order to continue the setup program. Do you accept the terms?
INTEL SOFTWARE LICENSE AGREEMENT (OEM / IHV / ISV Distribution & Single User)
IMPORTANT - READ BEFORE COPYING, INSTALLING OR USING.
Do not use or load this software and any associated materials (collectively, the "Software") until you have carefully read the following terms and conditions. By loading or using the Software, you agree to the terms of this Agreement. If you do not wish to so agree, do not install or use the Software.
Please Also Note:
* If you are an Original Equipment Manufacturer (OEM), Independent Hardware Vendor (IHV), or Independent Software Vendor (ISV), this complete LICENSE AGREEMENT applies;
< Back
Yes
No
Intel® Installation Framework

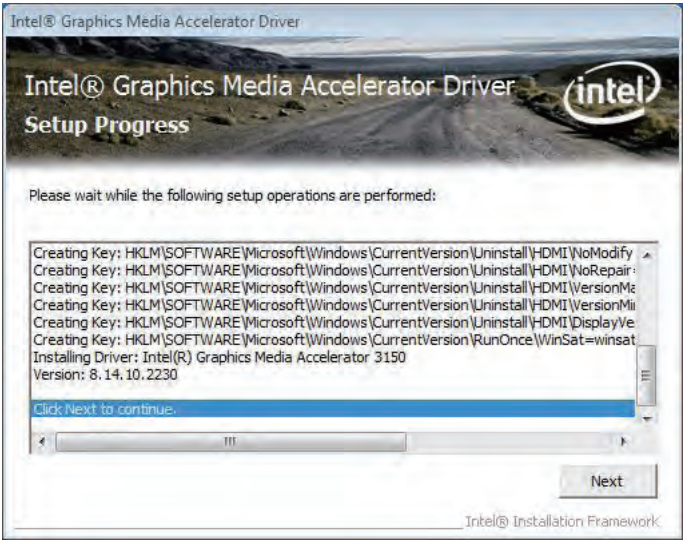
4. Click “Next >”.



5. Wait for the process.



6. Click “Next >”.

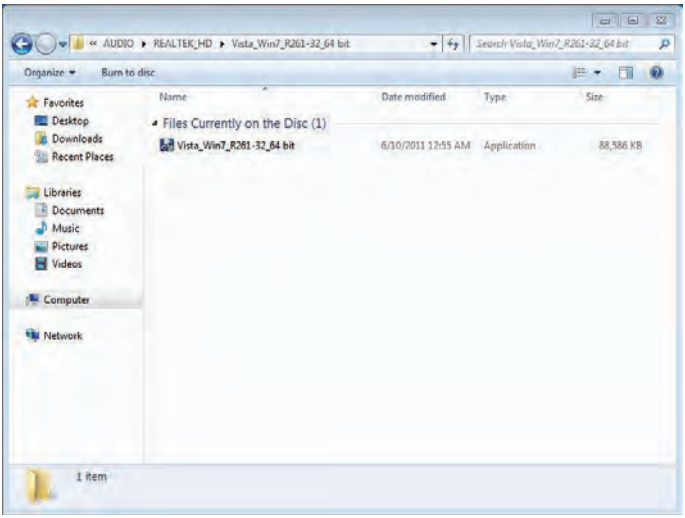


7. Click “Yes >” to restart computer.

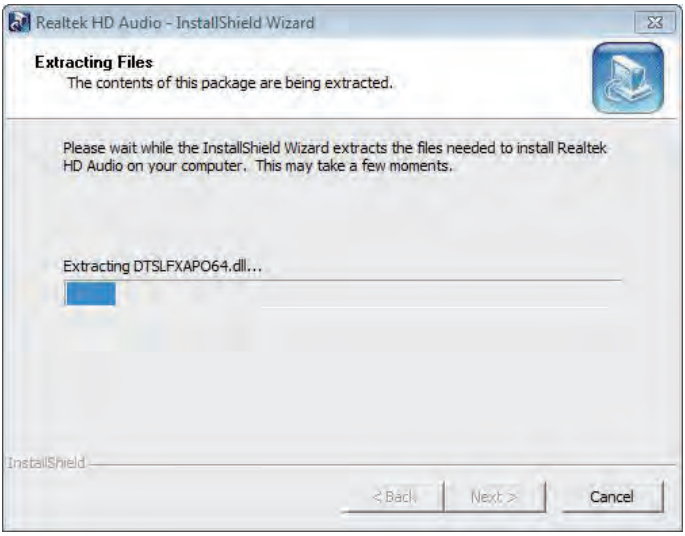
Intel® Graphics Media Accelerator Driver
Intel® Graphics Media Accelerator Driver
Setup Is Complete
intel
You must restart this computer for the changes to take effect. Would you like to restart the computer now?
Yes, I want to restart this computer now.
No, I will restart this computer later.
Click Finish, then remove any installation media from the drives.
Finish
Intel® Installation Framework

4.2.3 Audio

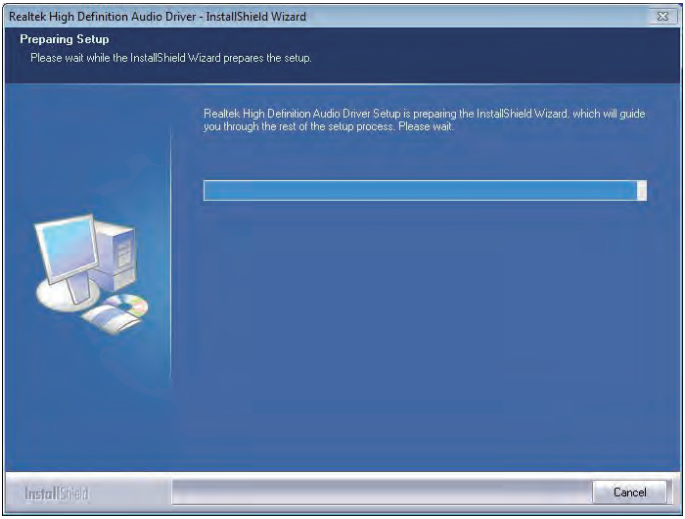
1. Execute “Vista_Win7_R261-32_64.exe” in the suggested path (\AUDIO\REALTEK_HD\Vista_Win7_R261-32_64 bit).



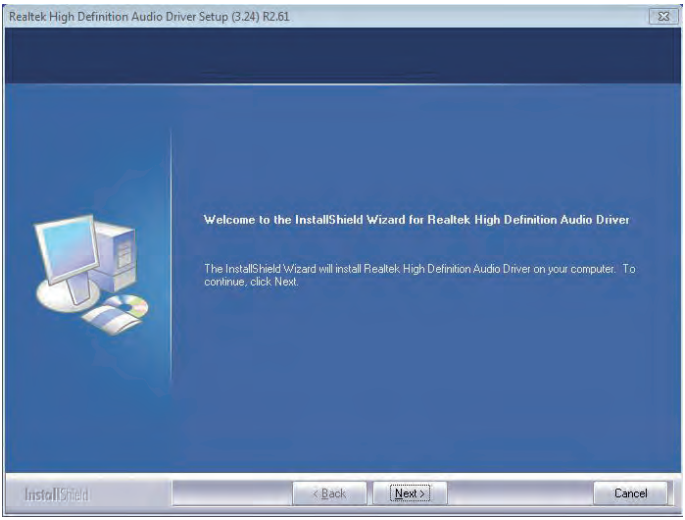
2. Wait for extracting.


Realtek HD Audio - InstallShield Wizard
Extracting Files
The contents of this package are being extracted.
Please wait while the InstallShield Wizard extracts the files needed to install Realtek HD Audio on your computer. This may take a few moments.
Extracting DTSLFXAPO64.dll...
InstallShield
< Back
Next >
Cancel

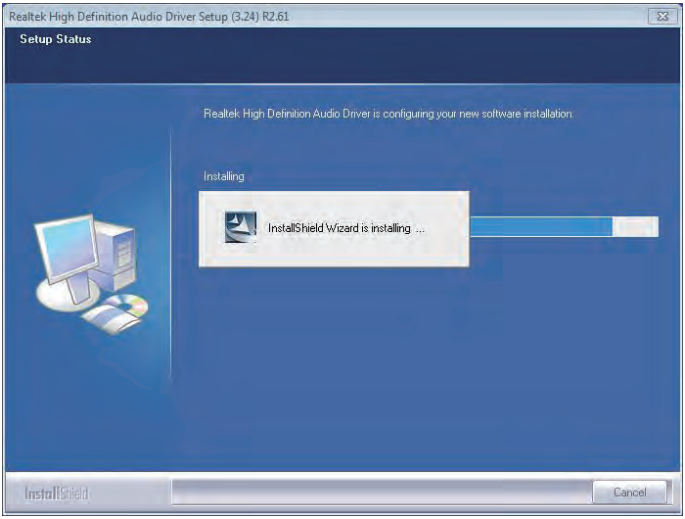
3. Keep waiting.


Realtek High Definition Audio Driver - InstallShield Wizard
Preparing Setup
Please wait while the InstallShield Wizard prepares the setup.
Realtek High Definition Audio Driver Setup is preparing the InstallShield Wizard, which will guide you through the rest of the setup process. Please wait.
InstallShield
Cancel

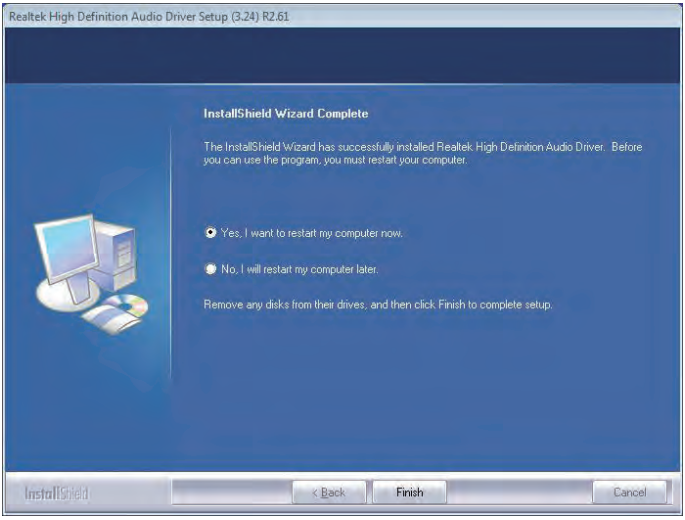
4. Click “Next >”.


Realtek High Definition Audio Driver Setup (3.24) R2.61
Welcome to the InstallShield Wizard for Realtek High Definition Audio Driver
The InstallShield Wizard will install Realtek High Definition Audio Driver on your computer. To continue, click Next.
InstallShield
< Back
Next >
Cancel

5. Wait for the process.

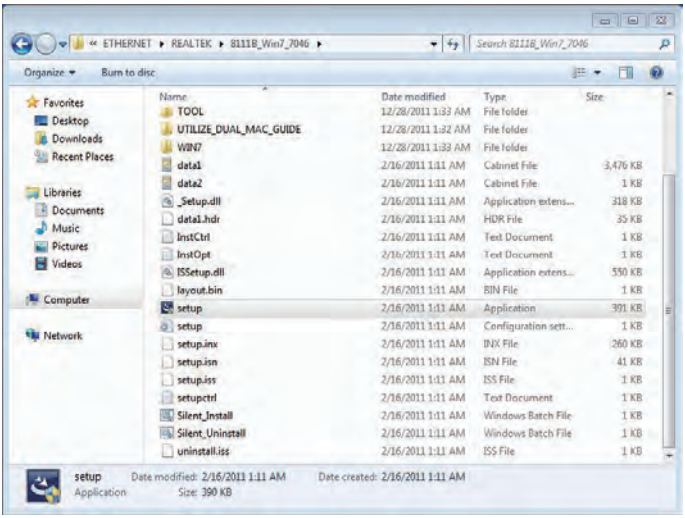

Realtek High Definition Audio Driver Setup (3.24) R2.61
Setup Status
Realtek High Definition Audio Driver is configuring your new software installation.
Installing
InstallShield Wizard is installing ...
InstallShield
Cancel

6. Click “Yes >” to restart computer.

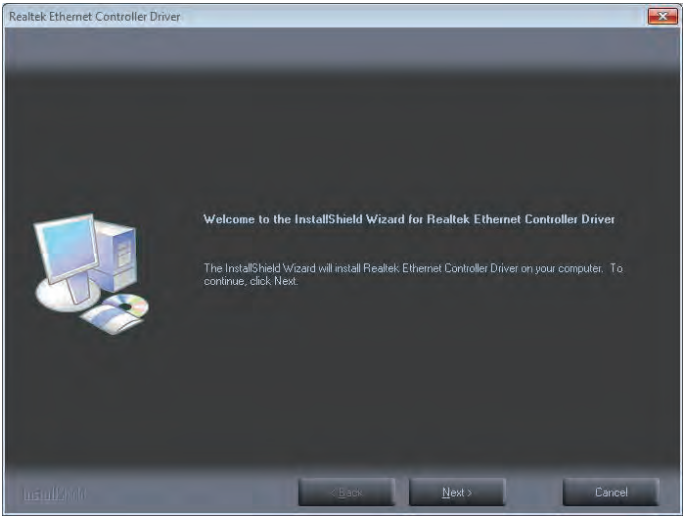

Realtek High Definition Audio Driver Setup (3.24) R2.61
InstallShield Wizard Complete
The InstallShield Wizard has successfully installed Realtek High Definition Audio Driver. Before you can use the program, you must restart your computer.
Yes, I want to restart my computer now.
No, I will restart my computer later.
Remove any disks from their drives, and then click Finish to complete setup.
InstallShield
< Back
Finish
Cancel

4.2.4 LAN

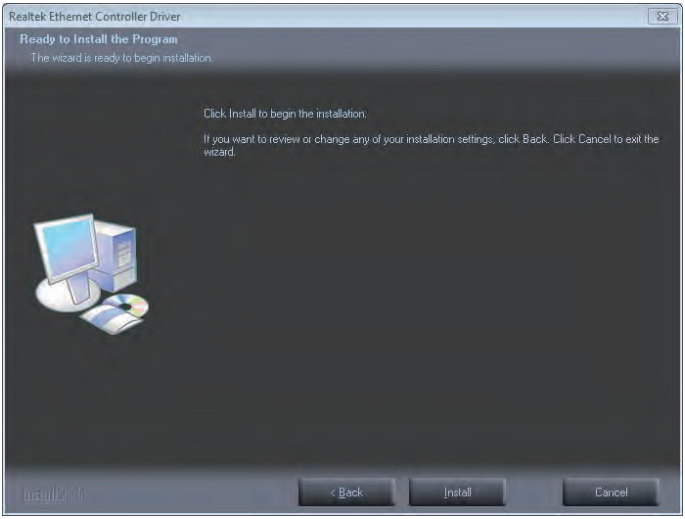
1. Execute “setup.exe” in the suggested path (\ETHERNET\ REALTEK\8111B_Win7_7046).


ETHERNET ▸ REALTEK ▸ 8111B_Win7_7046 ▸
Search 8111B_Win7_7046
Organize
Burn to disc
Favorites
Desktop
Downloads
Recent Places
Libraries
Documents
Music
Pictures
Videos
Computer
Network
Name
Date modified
Type
Size
TOOL 12/28/2011 1:33 AM File folder
UTILIZE_DUAL_MAC_GUIDE 12/28/2011 1:32 AM File folder
WIN7 12/28/2011 1:33 AM File folder
data1 2/16/2011 1:11 AM Cabinet File 3,476 KB
data2 2/16/2011 1:11 AM Cabinet File 1 KB
_Setup.dll 2/16/2011 1:11 AM Application extens... 318 KB
data1.hdr 2/16/2011 1:11 AM HDR File 35 KB
InstCtrl 2/16/2011 1:11 AM Text Document 1 KB
InstOpt 2/16/2011 1:11 AM Text Document 1 KB
ISSetup.dll 2/16/2011 1:11 AM Application extens... 550 KB
layout.bin 2/16/2011 1:11 AM BIN File 1 KB
setup 2/16/2011 1:11 AM Application 391 KB
setup 2/16/2011 1:11 AM Configuration sett... 1 KB
setup.inx 2/16/2011 1:11 AM INX File 260 KB
setup.isn 2/16/2011 1:11 AM ISN File 41 KB
setup.iss 2/16/2011 1:11 AM ISS File 1 KB
setupctrl 2/16/2011 1:11 AM Text Document 1 KB
Silent_Install 2/16/2011 1:11 AM Windows Batch File 1 KB
Silent_Uninstall 2/16/2011 1:11 AM Windows Batch File 1 KB
uninstall.iss 2/16/2011 1:11 AM ISS File 1 KB
setup Date modified: 2/16/2011 1:11 AM Date created: 2/16/2011 1:11 AM
Application Size: 390 KB

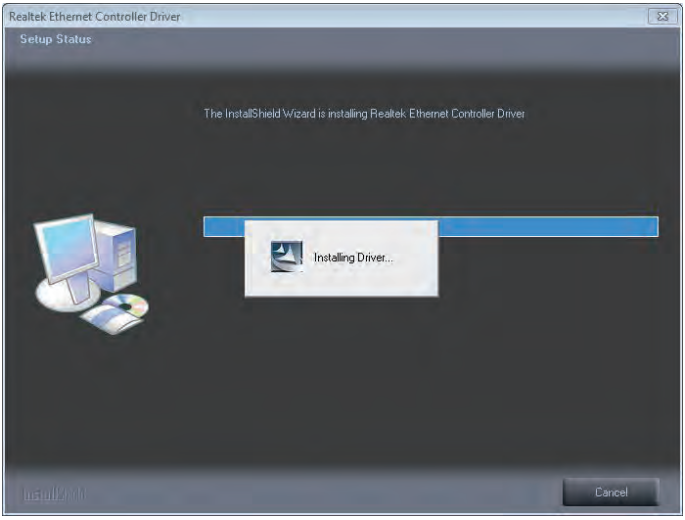
2. Click “Next >”.


Realtek Ethernet Controller Driver
Welcome to the InstallShield Wizard for Realtek Ethernet Controller Driver
The InstallShield Wizard will install Realtek Ethernet Controller Driver on your computer. To continue, click Next.
< Back
Next >
Cancel

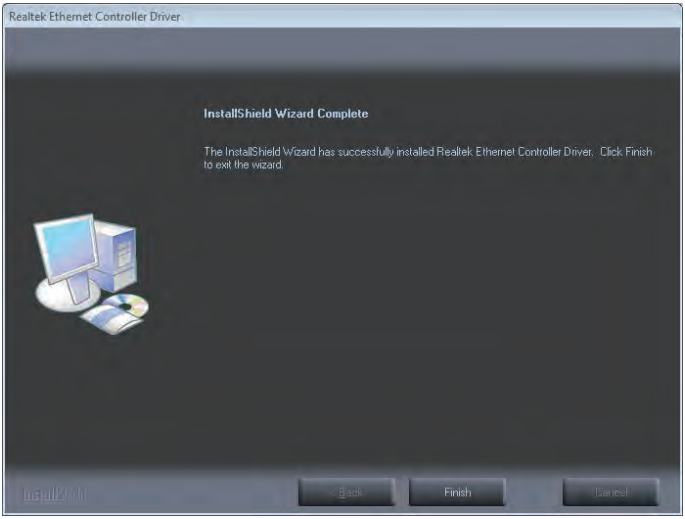
3. Click “Install >”.


Realtek Ethernet Controller Driver
Ready to Install the Program
The wizard is ready to begin installation.
Click Install to begin the installation.
If you want to review or change any of your installation settings, click Back. Click Cancel to exit the wizard.
< Back
Install
Cancel

4. Wait for the process.



5. Click “Finish >”.


Realtek Ethernet Controller Driver
InstallShield Wizard Complete
The InstallShield Wizard has successfully installed Realtek Ethernet Controller Driver. Click Finish to exit the wizard.
< Back
Finish
Cancel

Chapter 5

BIOS

5.1 BIOS Main Setup

The AMI BIOS provides a setup utility program for specifying the system configurations and settings which are stored in the BIOS ROM of the system. When you turn on the computer, the AMI BIOS is immediately activated. After you have entered the setup utility, use the left/right arrow keys to highlight a particular configuration screen from the top menu bar or use the down arrow key to access and configure the information below.

Note: In order to increase system stability and performance, our engineering staff are constantly improving the BIOS menu. The BIOS setup screens and descriptions illustrated in this manual are for your reference only, and may not completely match what you see on your screen.

BIOS Information

Display the BIOS information.

System Date

Set the system date. Note that the 'Day' automatically changes when you set the date.

The date format is:

Day : Sun to Sat
Month : 1 to 12
Date : 1 to 31
Year : 1999 to 2099

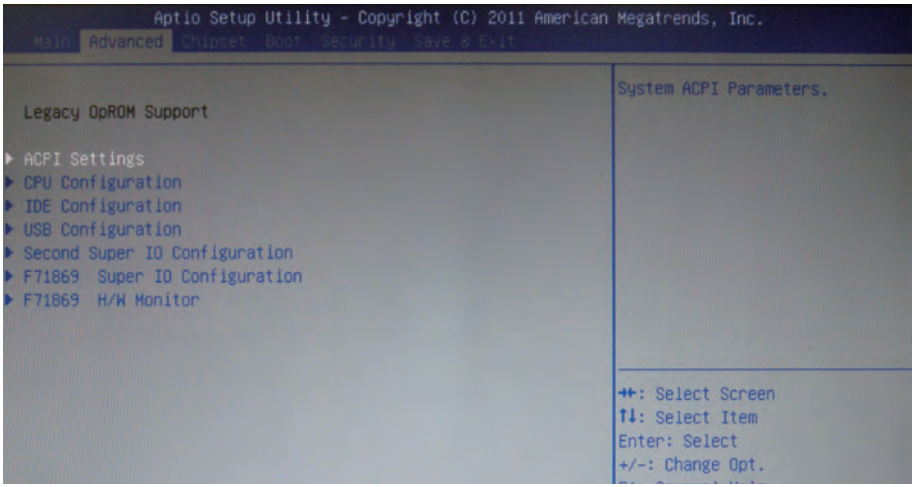
System Time

Set the system time.

The time format is:

Hour : 00 to 23
Minute : 00 to 59
Second : 00 to 59

5.2 Advanced Settings



ACPI Settings

Set system ACPI parameters.

CPU Configuration

This section is used to configure the CPU. It will also display detected CPU information.

IDE Configuration

Configure IDE devices.

USB Configuration

Configure the USB devices.

Second Super IO Configuration

Set system super IO chip parameters.

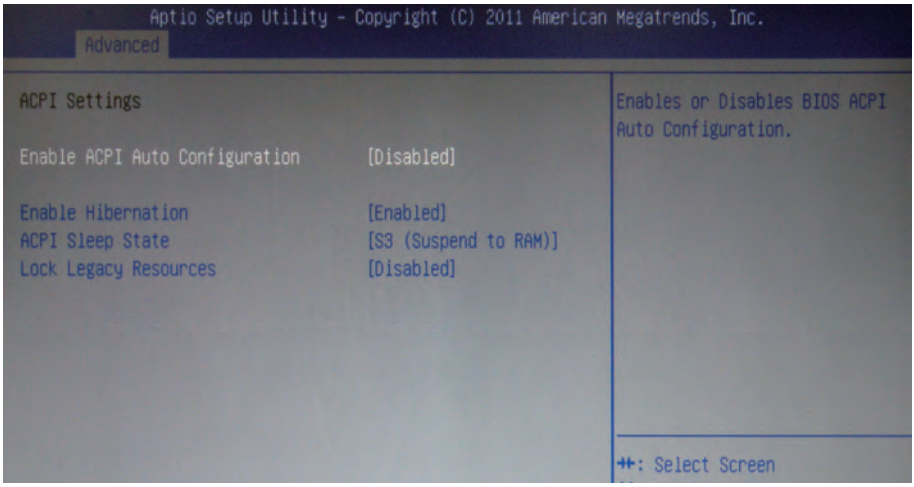
F71869 Super IO Configuration

Set system super IO chip parameters.

F71869 H/W Monitor

Reveal monitor hardware status.

5.2.1 ACPI Settings


Aptio Setup Utility – Copyright (C) 2011 American Megatrends, Inc.
Advanced
ACPI Settings
Enable ACPI Auto Configuration [Disabled]
Enable Hibernation [Enabled]
ACPI Sleep State [S3 (Suspend to RAM)]
Lock Legacy Resources [Disabled]
Enables or Disables BIOS ACPI Auto Configuration.
++: Select Screen

Enable ACPI Auto Configuration

This item allows you to enable/disable ACPI (Advanced Configuration and Power Interface) Auto Configuration.
Setting: Disabled (Default), Enabled.

Enable Hibernation

Enable/Disable the Hibernation function. This allows the operating system to control power to the computer's disk, monitor and peripheral devices.
Setting: Enabled (Default), Disabled

ACPI Sleep State

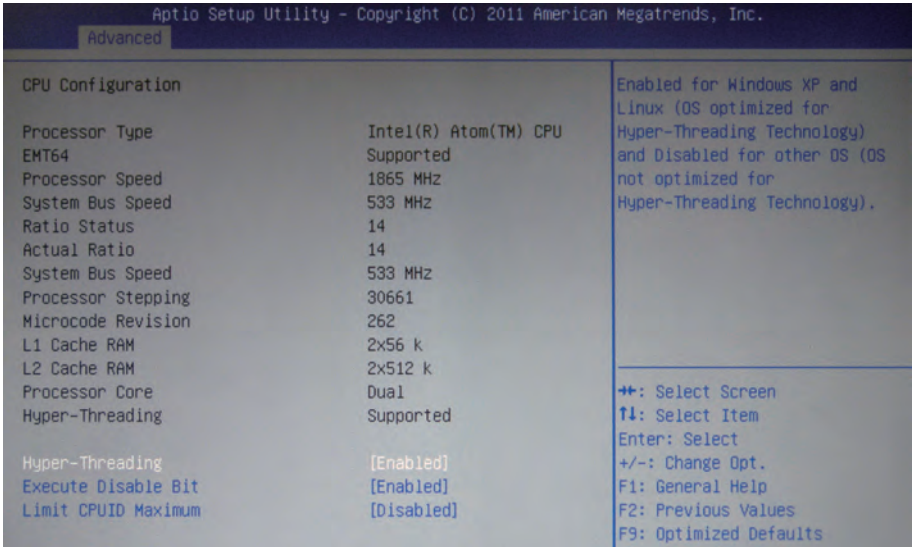
Select the highest ACPI sleep state the system will enter when the SUSPEND button is pressed.
The choice: Suspend Disabled, S1 (CPU Stop Clock), S3 (Suspend to RAM)

Lock Legacy Resources

Enable/Disable Lock of Legacy Resources.

5.2.2 CPU Configuration

The CPU Configuration setup screen varies depending on the installed processor.


Aptio Setup Utility – Copyright (C) 2011 American Megatrends, Inc.
Advanced
CPU Configuration
Processor Type Intel(R) Atom(TM) CPU
EMT64 Supported
Processor Speed 1865 MHz
System Bus Speed 533 MHz
Ratio Status 14
Actual Ratio 14
System Bus Speed 533 MHz
Processor Stepping 30661
Microcode Revision 262
L1 Cache RAM 2x56 k
L2 Cache RAM 2x512 k
Processor Core Dual
Hyper-Threading Supported
Hyper-Threading [Enabled]
Execute Disable Bit [Enabled]
Limit CPUID Maximum [Disabled]
Enabled for Windows XP and Linux (OS optimized for Hyper-Threading Technology) and Disabled for other OS (OS not optimized for Hyper-Threading Technology).
→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F9: Optimized Defaults

Hyper-threading

This item is used to Enable/Disable the processor's Hyper-threading feature.

Enabled for Windows XP and Linux (OS optimized for Hyper-threading Technology) and disabled for other OS (OS not optimized for Hyper-threading Technology).

When disabled, only one thread per enabled core is enabled.

Execute Disable Bit

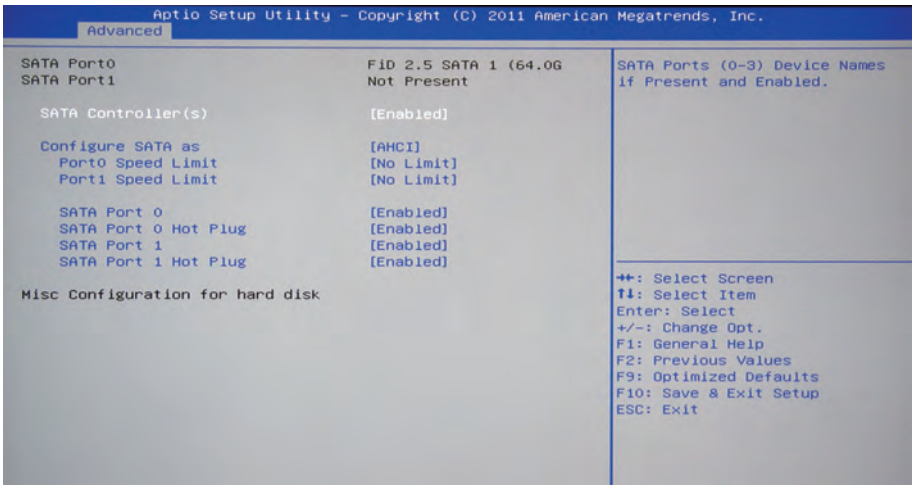
XD can prevent certain classes of malicious buffer overflow attacks when combined with a supporting OS (Windows Server 2003 SP1, Windows XP SP2, SuSE Linux 9.2, RedHat Enterprise 3 update 3.)

Limit CPUID Maximum

Enable/Disable the Limit CPUID Maximum.

5.2.3 IDE Configuration

It allows you to select the operation mode for SATA controller.



SATA Controller(s)

SATA Ports (0-3) Device Names if Present and Enabled.

Configure SATA as

Select a configuration for SATA controller.

Port0/1 Speed Limit

Select Port0/1 AHCI Speed Limit.

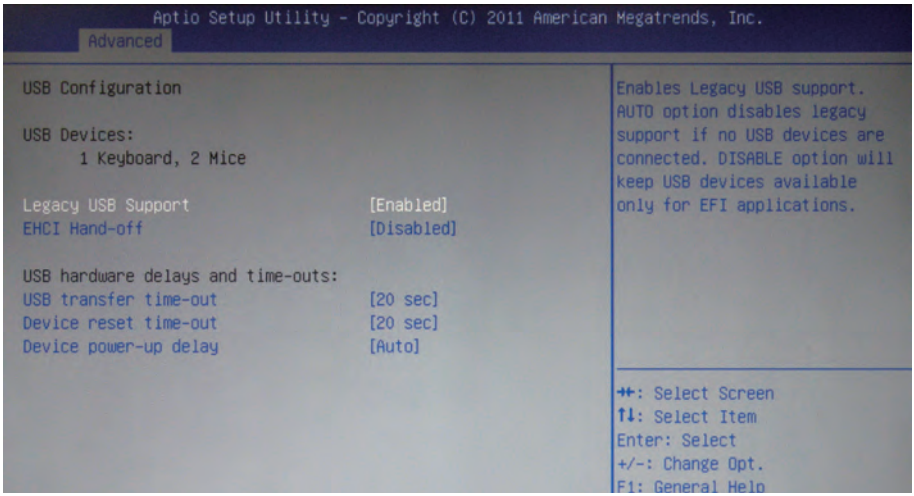
SATA Port 0/1

Enable/Disable SATA Port.

SATA Port 0/1 Hot Plug

Designates this port as Hot Pluggable.

5.2.4 USB Configuration


Aptio Setup Utility – Copyright (C) 2011 American Megatrends, Inc.
Advanced
USB Configuration
USB Devices:
1 Keyboard, 2 Mice
Legacy USB Support [Enabled]
EHCI Hand-off [Disabled]
USB hardware delays and time-outs:
USB transfer time-out [20 sec]
Device reset time-out [20 sec]
Device power-up delay [Auto]
Enables Legacy USB support. AUTO option disables legacy support if no USB devices are connected. DISABLE option will keep USB devices available only for EFI applications.
→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help

Legacy USB Support

Enables support for legacy USB. AUTO option disables legacy support if no USB devices are connected. DISABLE option will keep USB devices available only for EFI applications.

EHCI Hand-Off

Allows you to enable support for operating systems without an EHCI hand-off feature. Do not disable the BIOS EHCI Hand-Off option if you are running a Windows® operating system with USB device.
Settings: Enabled (Default); Disabled

USB transfer time-out

The time-out value for Control, Bulk, and Interrupt transfers.

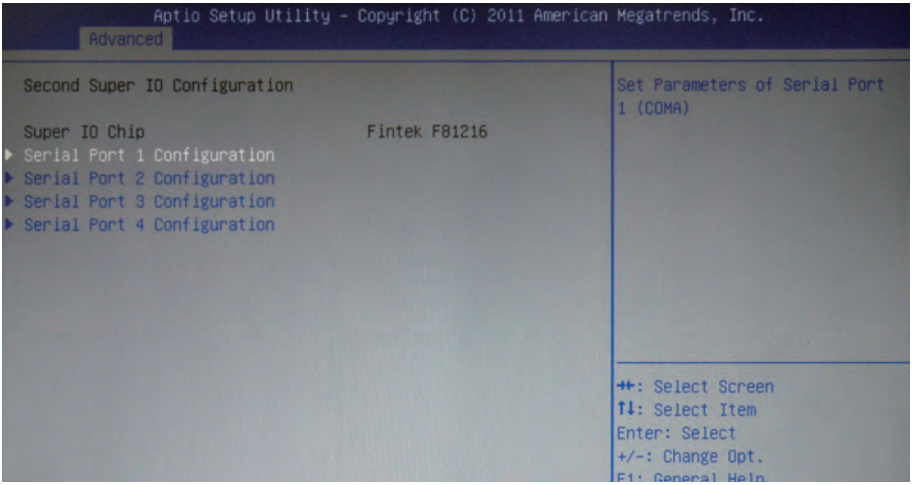
Device reset time-out

USB mass storage device Start Unit command time-out.

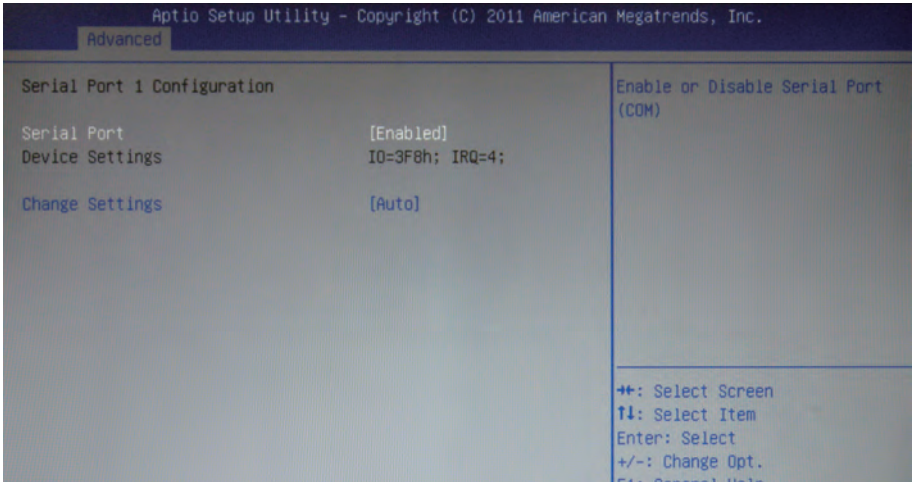
Device power-up delay

Max time the device will take before it properly reports itself to the Host Controller. 'Auto' uses default value: for a Root port the delay is taken from Hub descriptor.
The choice: Auto, Manual

5.2.5 Second Super IO Configuration



Serial Port 1~4 Configuration



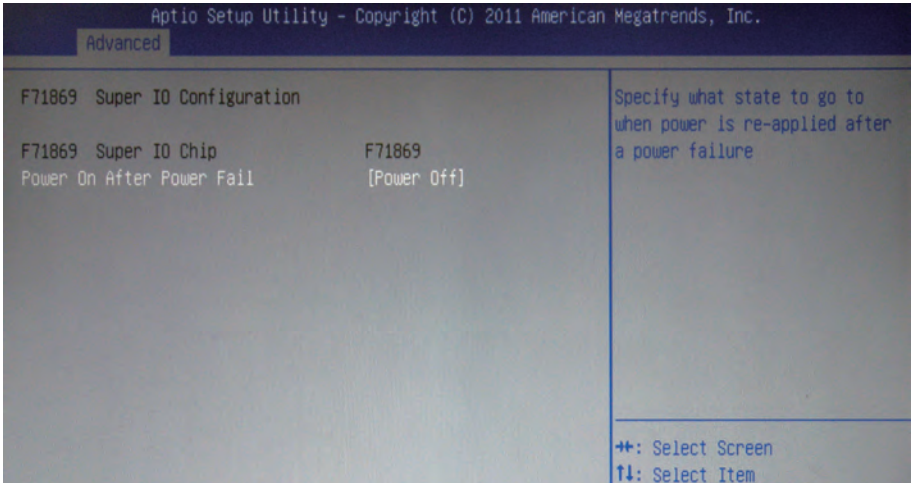
Serial Port

This item allows you to enable/disable Serial Port (COM).

Change Settings

This item allows you to change the serial port IO port address and interrupt address.

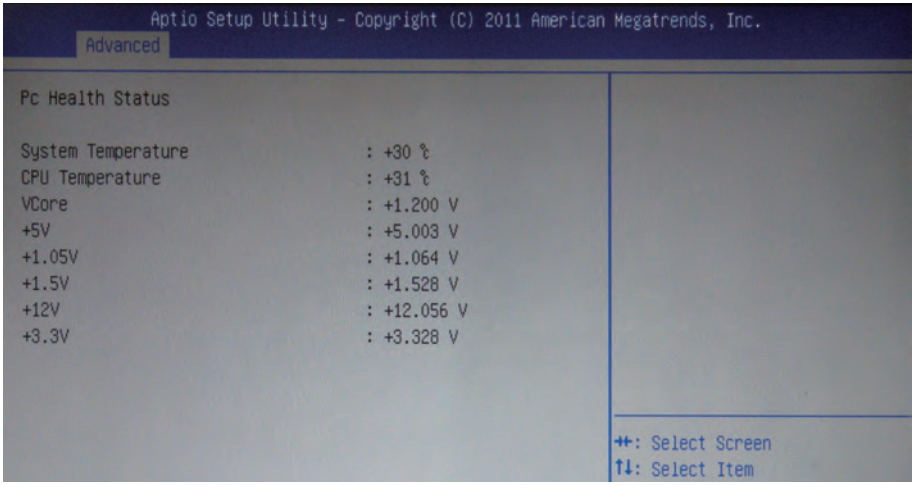
5.2.6 F71869 Super IO Configuration


Aptio Setup Utility – Copyright (C) 2011 American Megatrends, Inc.
Advanced
F71869 Super IO Configuration
F71869 Super IO Chip F71869
Power On After Power Fail [Power Off]
Specify what state to go to when power is re-applied after a power failure
→←: Select Screen
↑↓: Select Item

Power On After Power Fail

Specify what state to go to when power is re-applied after a power failure.

5.2.7 F71869 H/W Monitor


Aptio Setup Utility – Copyright (C) 2011 American Megatrends, Inc.
Advanced
Pc Health Status
System Temperature : +30 ℃
CPU Temperature : +31 ℃
VCore : +1.200 V
+5V : +5.003 V
+1.05V : +1.064 V
+1.5V : +1.528 V
+12V : +12.056 V
+3.3V : +3.328 V
→←: Select Screen
↑↓: Select Item

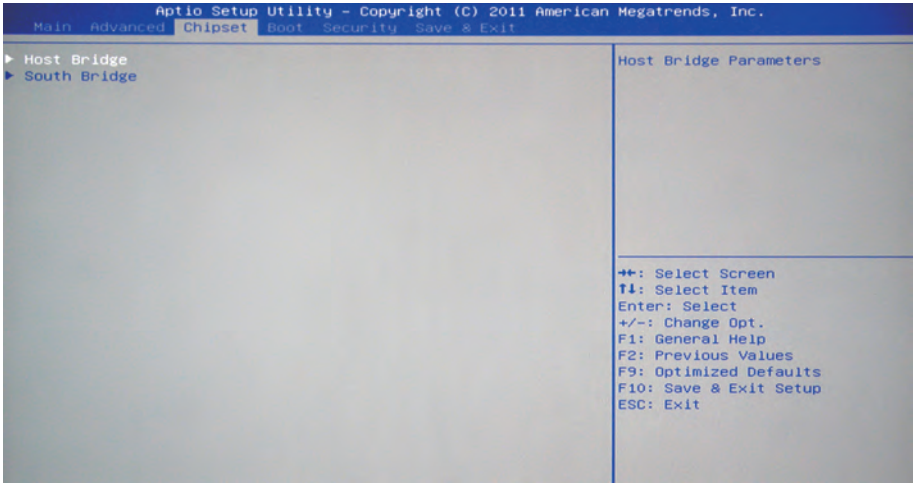
PC Health Status

The hardware monitor menu shows the operating temperature, fan speeds and system voltages.

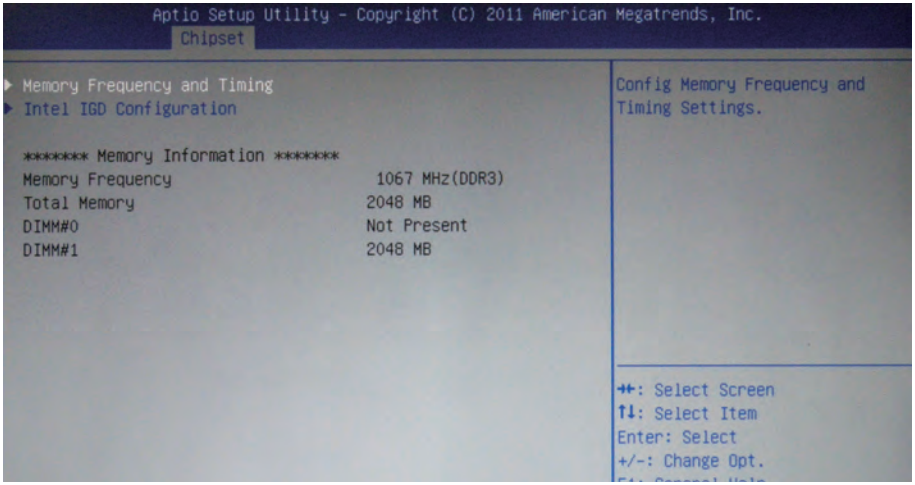
5.3 Chipset Settings

This submenu allows you to configure the specific features of the chipset installed on your system. The chipset manage bus speeds and access to system memory resources, such as DRAM. It also coordinates communications with the PCI bus.

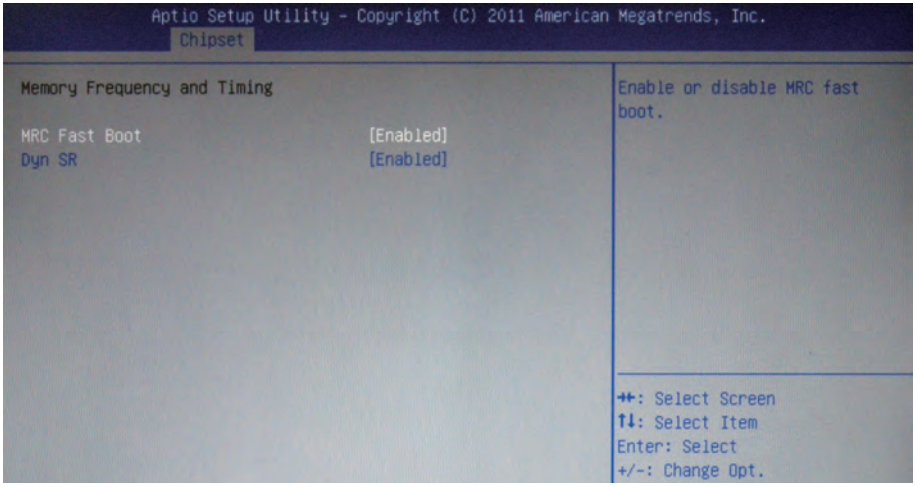
Note: Beware of that setting inappropriate values in items of this menu may cause system to malfunction.



5.3.1 Host Bridge



Memory Frequency and Timing

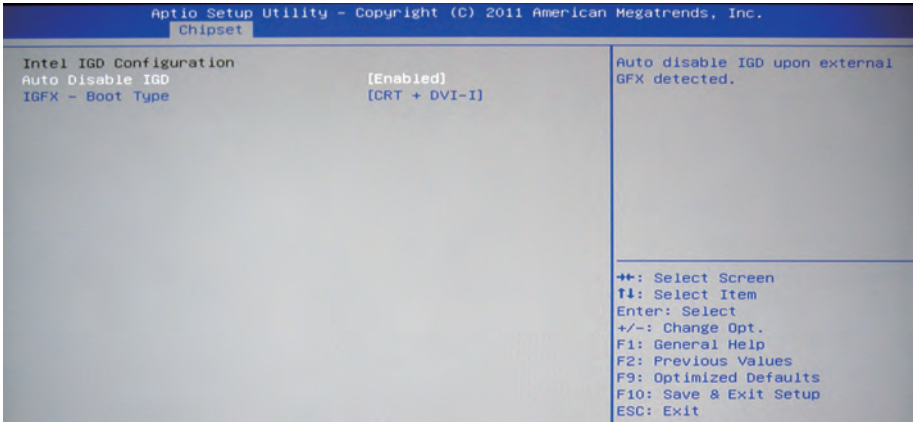


MRC Fast Boot

Enable/Disable MRC fast boot.

Dyn SR

Enable/Disable Dyn SR.



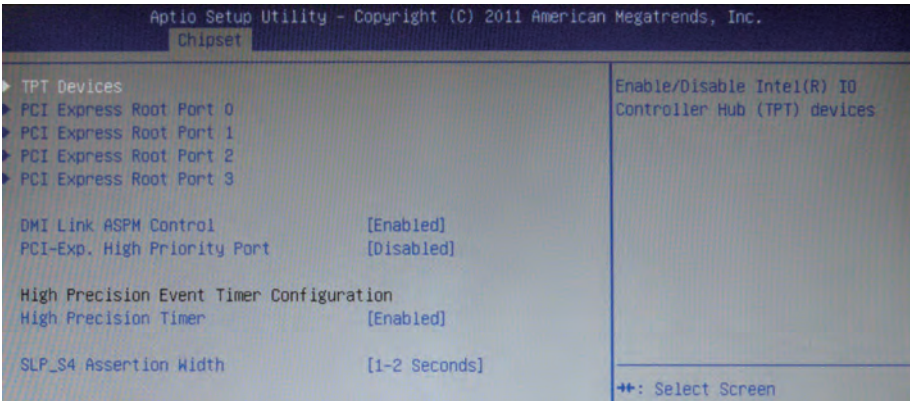
Auto Disable IGD

Auto disable IGD upon external GFX detected.

IGFX - Boot Type

Select the Video Device which will be activated during POST. This has no effect if external graphics present.

5.3.2 South Bridge


Aptio Setup Utility – Copyright (C) 2011 American Megatrends, Inc.
Chipset
TPT Devices
PCI Express Root Port 0
PCI Express Root Port 1
PCI Express Root Port 2
PCI Express Root Port 3
DMI Link ASPM Control [Enabled]
PCI-Exp. High Priority Port [Disabled]
High Precision Event Timer Configuration
High Precision Timer [Enabled]
SLP_S4 Assertion Width [1-2 Seconds]
Enable/Disable Intel(R) IO Controller Hub (TPT) devices
→←: Select Screen

DMI Link ASPM Control

The control of Active State Power Management on both NB side and SB side of the DMI Link.

PCI-Exp, High Priority Port

Select a PCI Express High Priority Port.

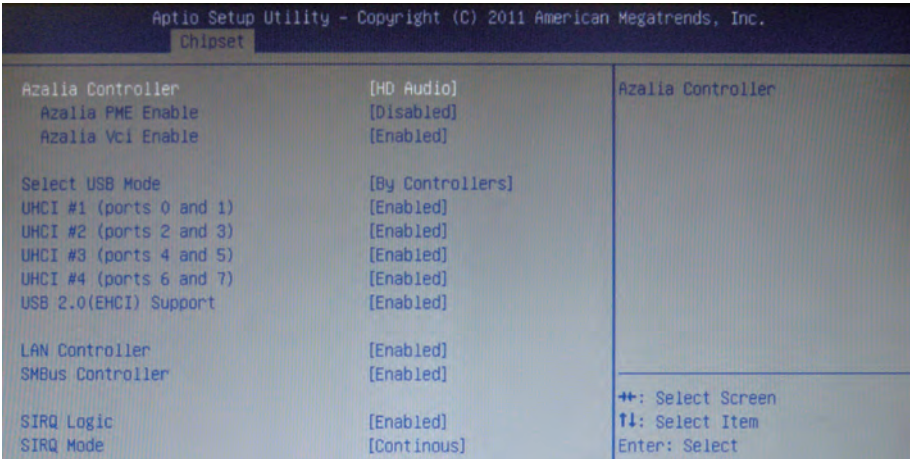
High Precision Timer

Enable/Disable the High Precision Event Timer.

SLP_S4 Assertion Width

Select a minimum assertion width of the SLP_S4# signal.

TPT Devices


Aptio Setup Utility – Copyright (C) 2011 American Megatrends, Inc.
Chipset
Azalia Controller [HD Audio]
Azalia PME Enable [Disabled]
Azalia Vci Enable [Enabled]
Select USB Mode [By Controllers]
UHCI #1 (ports 0 and 1) [Enabled]
UHCI #2 (ports 2 and 3) [Enabled]
UHCI #3 (ports 4 and 5) [Enabled]
UHCI #4 (ports 6 and 7) [Enabled]
USB 2.0(EHCI) Support [Enabled]
LAN Controller [Enabled]
SMBus Controller [Enabled]
SIRQ Logic [Enabled]
SIRQ Mode [Continous]
Azalia Controller
→←: Select Screen
↑↓: Select Item
Enter: Select

Azalia Controller
Enable/Disable Azalia Controller.

Azalia PME Enable
Enable/Disable Power Management capability of Audio Controller.

Azalia Vci Enable
Azalia supports 1 extended VC, which, when enabled, overrides ICH Vcp settings.

Select USB Mode
Select USB mode to control USB ports.

UHCI #1~4 (ports 0/2/4/6 and 1/3/5/7)
Control the USB UHCI (USB 1.1) functions. Disable from highest to lowest controller.

USB 2.0(EHCI) Support
Enable/Disable USB 2.0(EHCI) Support.

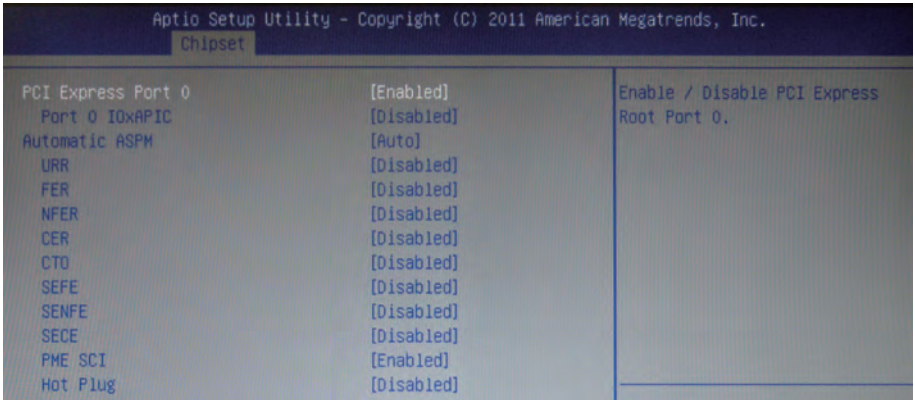
LAN Controller
Enable/Disable OnChip NIC Controller.

SMBus Controller
Enable/Disable OnChip SMBus Controller.

SIRQ Logic
Enable/Disable SIRQ Logic.

SIRQ Mode
Set SIRQ Mode.

PCI Express Root Port 0~3



PCI Express Port 0~3

Enable/Disable PCI Express Root Port 0~3.

Port 0~3 I/OxAPIC

Enable/Disable PCI Express Root Port 0~3 I/O APIC.

Automatic ASPM

Automatically enable ASPM based on reported capabilities and known issues. The choice: Manual, Auto

URR

Enable/Disable PCI Express Unsupported Request Reporting.

FER

Enable/Disable PCI Express Device Fatal Error Reporting.

NFER

Enable/Disable PCI Express Device Non-Fatal Error Reporting.

CER

Enable/Disable PCI Express Device Correctable Error Reporting.

CTO

Enable/Disable PCI Express Completion Timer TO.

SEFE

Enable/Disable Root PCI Express System Error on Fatal Error.

SENFE

Enable/Disable Root PCI Express System Error on Non-Fatal Error.

SECE

Enable/Disable Root PCI Express System Error on Correctable Error.

PME SCI

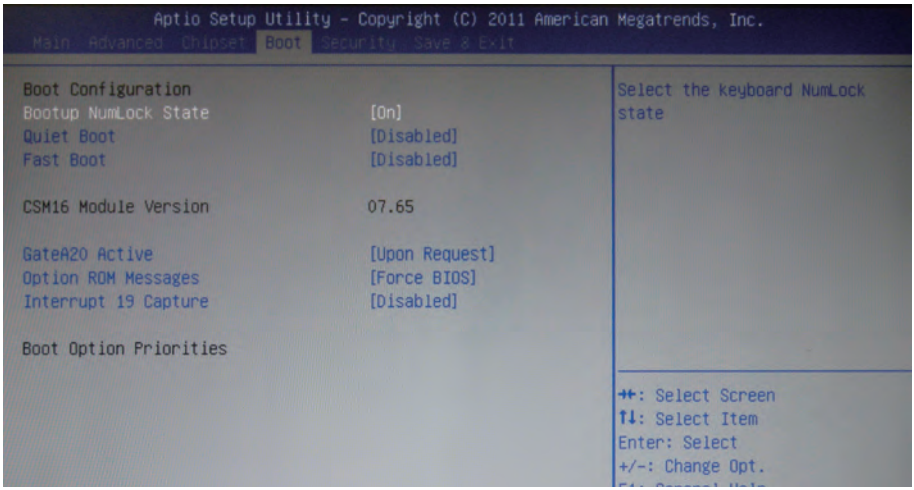
Enable/Disable PCI Express PME SCI.

Hot Plug

Enable/Disable PCI Express Hot Plug.

5.4 Boot Settings

The Boot menu items allow you to change the system boot options.


Aptio Setup Utility – Copyright (C) 2011 American Megatrends, Inc.
Main Advanced Chipset Boot Security Save & Exit
Boot Configuration
Bootup NumLock State [On]
Quiet Boot [Disabled]
Fast Boot [Disabled]
CSM16 Module Version 07.65
GateA20 Active [Upon Request]
Option ROM Messages [Force BIOS]
Interrupt 19 Capture [Disabled]
Boot Option Priorities
Select the keyboard NumLock state
→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.

Bootup Numlock State

This item determines if the Numlock key is active or inactive at system start-up time.

Quiet Boot

This allows you to select the screen display when the system boots.

Fast Boot

During the POST (Power On Self Test), the BIOS checks the hardware devices and counts the system memory. But all of these system tests are needed every time you boot, and can be turned off to save time. When set to Enabled, this option shortens POST by eliminating some tests.

GateA20 Active

UPON REQUEST: GA20 can be disabled using BIOS services.
ALWAYS: disallow to disable GA20; this option is useful when any RT code is executed above 1MB.

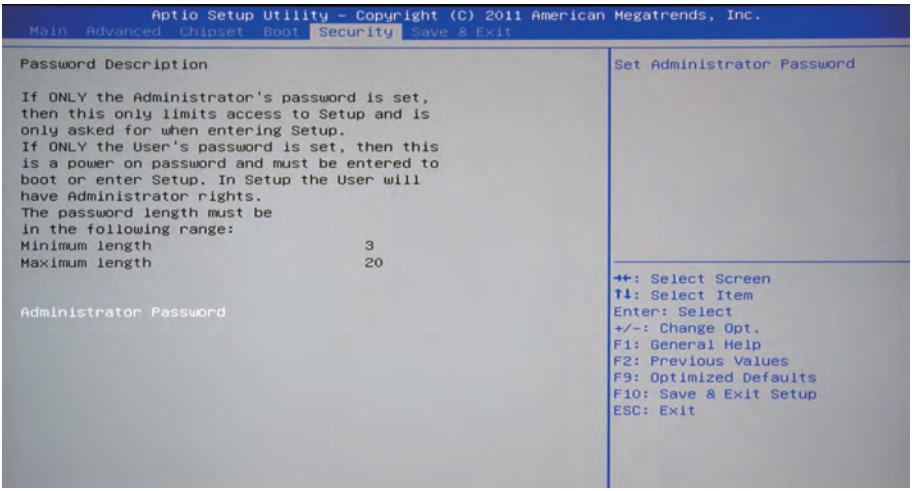
Fast Boot

Set display mode for Option ROM.
The choice: Force BIOS, Keep Current

Interrupt 19 Capture

Enable/Disable Option ROMs to trap Int 19.

5.5 Security


Aptio Setup Utility – Copyright (C) 2011 American Megatrends, Inc.
Main Advanced Chipset Boot Security Save & Exit
Password Description
If ONLY the Administrator's password is set, then this only limits access to Setup and is only asked for when entering Setup.
If ONLY the User's password is set, then this is a power on password and must be entered to boot or enter Setup. In Setup the User will have Administrator rights.
The password length must be in the following range:
Minimum length 3
Maximum length 20
Administrator Password
Set Administrator Password
→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F9: Optimized Defaults
F10: Save & Exit Setup
ESC: Exit

Administrator Password

Use the Administrator Password to set or change a administrator password.

ENTER PASSWORD

Type the password, up to eight characters in length, and press <Enter>. The password typed now will clear any previously entered password from CMOS memory. You will be asked to confirm the password. Type the password again and press <Enter>. You may also press <ESC> to abort the selection and not enter a password.

To disable a password, just press <Enter> when you are prompted to enter the password. A message will confirm the password will be disabled. Once the password is disabled, the system will boot and you can enter Setup freely.

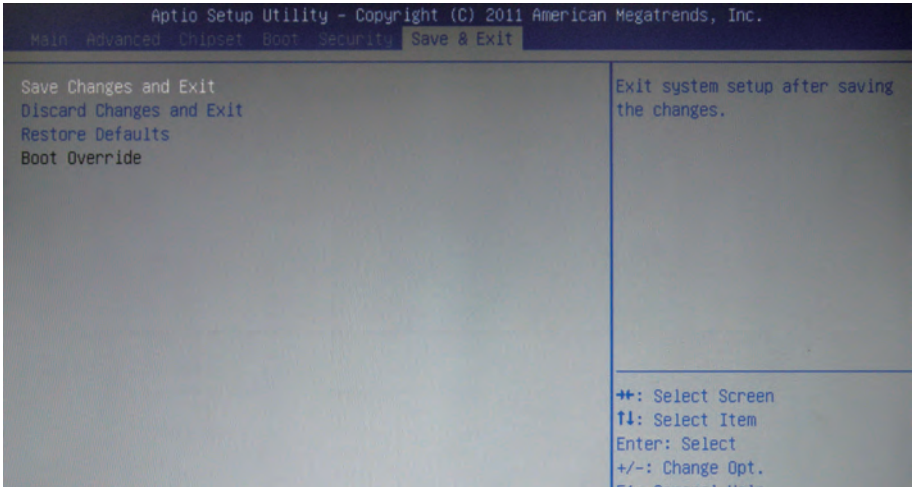
PASSWORD DISABLED

When a password has been enabled, you will be prompted to enter it every time you try to enter Setup. This prevents an unauthorized person from changing any part of your system configuration.

Additionally, when a password is enabled, you can also require the BIOS to request a password every time your system is rebooted. This would prevent unauthorized use of your computer.

You can determine when the password is required within the BIOS Features Setup Menu and its Security option. If the Security option is set to “System”, the password will be required both at boot and at entry to Setup. If it’s set to “Setup”, prompting only occurs when trying to enter Setup.

5.6 Save & Exit


Aptio Setup Utility – Copyright (C) 2011 American Megatrends, Inc.
Main Advanced Chipset Boot Security Save & Exit
Save Changes and Exit
Discard Changes and Exit
Restore Defaults
Boot Override
Exit system setup after saving the changes.
→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.

Save Changes and Exit

Pressing <Enter> on this item and it asks for confirmation:

Save configuration changes and exit setup?

Pressing <OK> stores the selection made in the menus in CMOS - a special section of memory that stays on after you turn your system off. The next time you boot your computer, the BIOS configures your system according to the Setup selections stored in CMOS. After saving the values the system is restarted again.

Discard Changes and Exit

Exit system setup without saving any changes.
<ESC> key can be used for this operation.

Restore Defaults

Restore system to settings previously stored by Save as User Defaults. Pressing <Enter> on this item and it asks for confirmation prior to executing this command.

Boot Override

This group of functions includes a list of tokens, each of them corresponding to one device within the boot order. Select a drive to immediately boot that device regardless of the current boot order.

Appendix

Watchdog Timer (WDT) Setting

WDT is widely applied to industry computers to monitor activities of CPU. The programmed application triggers WDT with adequate timer setting depending on its requirement. Before WDT counts down to zero, the functional system will reset the counter. In case the WDT counter is not reset by an abnormal system, it will counts down to zero and then reset the system automatically.

This computer supports the watchdog timer up to 255 levels for users for software programming. Below please take the source code written in C for a WDT application example.

```
/*-----    Include Header Area -----*/
#include “math.h”
#include “stdio.h”
#include “dos.h”

/*-----    routing, sub-routing -----*/

void main()
{
/*-------- index port 0x2e ---------*/
          outportb(0x2e, 0x87);              /* initial IO port */
          outportb(0x2e, 0x87);          /* twice,  */

          outportb(0x2e, 0x07);          /* point to logical device */
          outportb(0x2e+1, 0x07);          /* select logical device 7 */
          outportb(0x2e, 0xf5);          /* select offset f5h */
          outportb(0x2e+1, 0x40);          /* set bit5 = 1 to clear bit5 */
          outportb(0x2e, 0xf0);          /* select offset f0h */
          outportb(0x2e+1, 0x81);          /* set bit7 =1 to enable WDTRST# */
          outportb(0x2e, 0xf6);          /* select offset f6h */
          outportb(0x2e+1, 0x05);          /* update offset f6h to 0ah :10sec */
          outportb(0x2e, 0xf5);          /* select offset f5h */
          outportb(0x2e+1, 0x20);          /* set bit5 = 1 enable watch dog time
*/

          outportb(0x2e, 0xAA);          /* stop program F71869E, Exit */
}
```

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